

203.1.
A NEW
COSMOGRAPHY,
OR
SURVEY
Of the Whole
WORLD;

In Six Ingenious and Comprehensive
Discourses.

With a Previous Discourse, being a New
Project for bringing up Young Men
to Learning.

Humbly Dedicated to the Honourable
HENRY LITTLETON, Esq;

By *GUY MIEGE, Gent.*

L O N D O N,

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ADVERTISEMENT.

MR. Miede, the Author of this Book, Teaches Geography both at Home and Abroad, with the Use of Globes and Maps.

This is that Noble Science, which gives an Account of the World wherein we live, of its several Country's, Mountains, Capes, Seas, Lakes, Rivers, Towns and City's, Provinces, States, and Kingdoms. A Science without which one cannot be a good Historian, or a compleat Statesman, and which is no small Ornament to any thing of a Gentleman. Therefore it is so Taking beyond Sea, but in France especially, that there are few Men of any Note or Fortune but are brought up to it. And we find by Experience, that, of all Study's Young Gentlemen are put upon, None is so Acceptable and Welcome to 'em, and indeed None so fit for Them, as the Study of Geography. For, as it is not only Genteel and Useful, but also very Delightful; so a short Time, with a little Application and Help, will serve to conquer it. Which makes me Confident, 'twill be well Relish'd Here, especially if it be Seasoned with apposite History.

The Author lives at his House, next to the Nags head, in James-street, Covent Garden. Where he is now preparing for the Press a large English Dictionary of Geography, both Ancient and Modern, Enriched with History. A Work that will be of great Use to all Gentlemen, Scholars, Merchants, Travellers, and generally all Lovers either of Geography or History.

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A NEW
 COSMOGRAPHY,
 OR
 SURVEY
 Of the whole World.

The First Discourse;

*Being an Introductory Discourse, or a New
 Project for bringing up Young Men to
 Learning.*

P*Hilaethes.* What think you, *Sophronius*, of the
 Way used now adays to bring up Youth?

Sophronius. 'Tis doubtless an odd kind of
 way; and, if Men be out in any Thing, 'tis in
 this. For 'tis undeniably true, that Children
 are brought up like Slaves till they come to
 the age of fourteen or fifteen years, or there-
 abouts. And what for? to make them
 learn, against the grain, perhaps a mouth-full

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of

of Latin. For of a hundred Scholars that spend the prime of their Age in this Torture, I dare affirm there is not the tenth part that after seven years Apprenticeship can justly boast to have conquered that Language.

Phil. 'Tis true enough, and I found it so by my own experience. They pester Youth with a pack of hard Words and Rules that confound their Memory, and stun their little Intellectuals, and all this under the Standart of the Rod. For my part, I am quite befottered with it, and with much ado shall I come to my self again.

Sophr. Thus they make of a fine Language, the Ferrou and the Plague of Youth; Who, being incapable of apprehending the beauty thereof, look upon it as a meer Scare-crow. The Reason is, because they are put upon it before their Memory be strong enough to retain so many strange words, and their Judgement ripe enough to apprehend the abstruse meaning of the Rules. For it is not with the Latin Tongue as with Vulgar Languages, which are learnt with much less difficulty, because usually spoken; Whereas the Latin Tongue (as it is used now adays in *England* especially) is in a manner but a Language for Books.

Phil. What course then, my dear *Sopbronius*, would you have one to take?

Sophr. This in my judgment would be the most proper way. After that a young Lad has learnt to Read and Write, and that he is pretty well instructed in the fundamental
points

points of the Religion wherein he was born, I would have him put upon some easie, pleasant, and useful Science, until his Judgment were ripe for the Latin Tongue.

Phil. What is that you would have him learn?

Sophr. The State and History of the World, and particularly of his own native Country. A thing so easie to learn, that it is not at all inconsistent with his tender Years. So pleasant, and so full of charming Variety, that he cannot but be taken with it. And withall so useful, that he would lay this up as a Treasure to be used in his riper Years. Thus I would have him to apply himself to two Things, Geography and History. Geography, that would shew him the Extent of the habitable World, it's Continents, Islands, States, and Provinces, Towns and Cities, its famous Mountains, Seas, Lakes, Rivers, and other Curiosities. By History he should see the different manner of living amongst Men, their several Languages, Religions, and Governments, together with the various Changes and Revolutions of States.

Phil. Oh! had I but taken this course. I should not have been laugh'd at, as I was not long since in a Company, for confounding (by meer Ignorance) *Swethland*, with *Switzerland*. I should not be puzzled, as I am, reading the Gazette, to know whether such a Place lies *North* or *South*, and whither it is in *Spain* or *Moscow*. This is not all. I am so little acquaint-

ed with the publick Concerns of the World, that I am quickly mumped, when there arises any Discourse of that kind in Company.

Sophr. Thus it is to be ill brought up in his Youth. For my part, I cannot conceive how any man that pretends to good Education, can be so narrow-Soul'd as to live in this World as if it were all shut up in his Neighbour-hood; nor how he can be satisfied, if he read either History or Forreign News, without some Knowledge of those Places which happen to be there mentioned.

Phil. The Truth is, without it one is but half an Historian; and to live in the World without a competent knowledge of the same, is properly to see no further than his Nose, and not to know whereabouts one is. This is, I confess, my Case; and truly I blush at it. But, if ever I have a Son to bring up, I am resolved it shall not be so with him.

Sophr. Thus where a Young Man has made a considerable Progress both in Geography and History (wherein young people take delight) I would have him disposed of for the *Latin* Tongue, especially if his Fancy should lead him to it.

Phil. But can no Expedient be found out to learn it in less time, and with less trouble, than now they do in Schools?

Sophr. Do you doubt it? I'll tell you of one which I think is very likely. Instead of so many Latin Schools which swarm every where,

where, and where so much precious Time is lost by reason of their tedious and lingering Methods, (beneficial indeed to School-Masters) there should be in every Province some Colleges erected, where nothing but Latin should be commonly spoken. For, when all is done, the quickest and best way to learn a Language is not so much by the eye as by the ear. And what makes us conquer vulgar Languages so much sooner than the Latin Tongue, but that those are spoken, and this is not, in *England* especially?

Phil. 'Tis true. But to what purpose shall one learn to speak a Language so little in use here, except to understand Books?

Sophr. I confess the speaking Part is so much out of date here, even amongst the greatest Scholars in the Land, that Strangers are in a maze to see Men of such a profound Learning as we have here in *England*, speak *Latin* with so much hesitancy. Latin that should be by right the general and standing Language for Scholars of any Nation to converse in together. But 'tis no wonder, if we consider how this Language is taught in Latin-Schools, where the very Masters speak as little Latin, and deliver themselves as much in *English* as they can. Whereas, if they did use their Scholars as well to the Speaking as the Reading Part, it would not only forward their Learning, but also make them fit to converse in that Language. And, though the speaking Latin is not altogether

altogether so much abroad since the French Tongue came up, as it has been formerly; yet it may fall out that a Traveller shall stand in need of *Latin*, where *French* is not so much in request.

Phil. In short, I perceive you would have one learn Latin, by using himself to speak it; because you conceive it is the readiest Way.

Sophr. Right. And to that purpose the fore-said Colleges should be provided of able and skilful Masters, such as should have absolutely the command of the Latin Tongue.

Phil. But you will grant, *Sophronius*, that the greatest benefit of that Language doth lye in the Reading Part.

Sophr. I grant it.

Phil. Now the Question is, whether speaking nothing but Latin in the Schools would advance the Reading Part so considerably as you imagine. For you know the style of most Latin Writers is very different from any thing of a speaking style.

Sophr. 'Tis true. But still the speaking part, I hope, would be no hindrance. And, when all is done, the Speaker has this advantage, that he practices his Language two ways, that is by Reading and Speaking; but the Reader, only by Reading.

Phil. There you are in the right. Now let us see how you would order your Colleges.

Sophr. In the first place I would have them all to be Boarders that should come to any of them.

Phil.

Phil. But then poor Parents should be deprived of the Advantage of bringing up their Children to Scholar-ship.

Sophr. So much the better. For many of them undo themselves utterly that way; and, when all comes to all, their Children are often forced to leave off, for want of Help. And then what signifies their long struggling, toiling, and moiling after a thing they could not compass, but only to make their Lives the more uncomfortable? Whereas, had they learnt a good Trade, they might live comfortably, and perhaps get enough besides to give their Children a good Education. And so they should not have occasion to repine at their loss of Time and Money, and to be justly grieved for having took so much pains about a thing which now is to be forgotten.

Learning is Chargeable, and the Harvest does not always answer to the Seeding. 'Tis I confess, a great Ornament and Advantage to Persons of Honour and Estates, who are best able to make a good Use of it, and to keep up its Reputation. But amongst Men whose whole Dependance is Learning, and who are fain to drive a Trade of it, it loses its Credit, and grows a very Drug. I appeal to these Times, now we see whole Sholes of poor distressed Scholars treading upon one anothers heels, and who going along may well use *Bi-* as his saying, *Omnia mecum porto*, I carry with me all I have. What makes them so

cheap, despicable, and ridiculous, apt every foot to be trampled upon by Brutish and Insulting Ignorance, but naked and hungry Poverty? And what makes their Poverty but their excessive Number?

Poverty, the General Scare-crow of Mankind, the fear of which keeps Men in a perpetual Motion, and makes them run head-long into the greatest Dangers,

Per Mare Pauperiem fugiunt, per Saxa, per Ignem.

Poverty, a lingring kind of Death, that having once seized upon a Mans Spirits dejects and stupifies him, takes away the edge of his Senses, weakens his Memory, discomposes his Mind, and makes him almost incapable of any Thing. Poverty, in a Word, that makes men Ridiculous; and so *Juvenal* has it,

——— *Nil habet Paupertas durius in se*
Quàm quòd Ridiculos homines facit———

Here's the greatest Mischief of Poverty, It turns Men into ridicule.

Phil. I do acknowledge what you say to be true. But, if the Sovereign, or any Rich Person well-disposed, had a mind to Found a College or more for the Education of a certain number of poor Peoples Children, would not you approve of it?

Sopbr.

Sophr. I should not at all dislike it, provided that (according to the Jesuits way) none should be admitted therein but ingenious, witty, and hopeful Lads.

Phil. Put the case then, *Sophronius*, that your Proposals were approved of by the Publick, how would you order your Scholars? For those that come in must speak some Language or other. Now 'tis supposed they cannot speak Latin, for they come hither to learn it; and, if they speak another Tongue, 'tis contrary to your own Proposition.

Sophr. To answer your Objection, I confess that, to compass our Design, it were convenient that such as should be first admitted into a College should have already some smattering of the Latin Tongue. Which the Masters might easily and in a short time improve to some degree of Perfection, by conversing with them in Latin, and using them to speak nothing else. And, after the first Comers, none should be admitted in, that did not understand some Latin Words, such as may be got by a good Vocabulary; and some familiar Dialogues, like those of *Corderius*. Thus their Tongues being untied by these previous Helps, one word would help out another; and conversing with none but such as speak Latin, Necessity would breed Attention, as Attention doth Learning. And so I am confident, that in a years time they would be as forward as those that have lingered four or five years at School.

Phil.

Phil. Thus far I am satisfied. But Would not you have them to make use of the Grammar?

Sophr. By all means. For, though by Rote one may learn a Language with ease, yet a Grammar is of great use to confirm that Learning. By that one learns it easily, and by this exactly.

Phil. You put me in mind, *Sophronius*, of a Young man that I was told of 'tother day; who had been several years in *France*, where he had learnt the *French* Tongue in its Purity, but only by Rote. He came back to *England*, where he was very much admired for his *French*. But he had not been here above three Months, when he began to confound the Tenses of Verbs, the Gender of Nouns, and to make strange Anglicisms.

Sophr. All this happen'd for want of Grammar-help. And therefore there should be for our Colleges a compendious Grammar, such as might be run over in a short time. But, because the main difficulty of the Latin Tongue in the Reading of Authors doth consist in the Construction, the Learners should be used frequently to that, as also to make Paraphrases. By this means I am confident that a Boy should know Latin enough at a years end to learn the Greek Tongue, and that in three years at farthest he might be fitted for the University.

Phil.

Phil. That indeed were a fine Business. But there should be very strict Orders kept in those Colleges, and the Collegers should have but little Correspondence with the rest of the World.

Sophr. Very right. And truly there's nothing so mischievous and fatal to young Gentlemen as the want of that 'Coercion for some time. For, whilst they are allowed to appear in publick with a Splendor sutable to their Birth, they meet with that Respect and those Caresses from their Inferiours that fills their minds presently with Pride and Vanity. Their eyes are ever admiring of fine Garbs, their Ears bewitched with the charming noise of the great Estates and Honours they are Heirs to, their Fancy's tickled with the flattering expressions of Servants and others that are apt to adore a rising Sun. Thus my young Gentleman hardly feels himself for joy, and his soft heart swells daily like Puff-past. Till at last he grows too stiff to be curbed; and, instead of a pliant Willow, he proves a stubborn Oak. He becomes *Impatiens Fugi*; and, though perhaps he never learn'd to Obey, yet he thinks it long till he Rules. His Lust is the only thing he is resolved to inflave himself to, he runs wherever that hurries him, and never thinks it far enough. But one step into Learning puts his Body and Soul out of Joint. Learning, pedantick Learning, why should he trouble himself with it? He is Learned enough
that

that is Rich, and that knows how to improve sensual and brutish Pleasures. And so there's my *Midas*, with his Asses Ears.

Phil. You have hit the Nail on the head. And without doubt it were the best way to keep such young men in the dark as much as possible, till they have discretion and learning enough to appear in publick, and so take advantage of such Companies as be fittest for them to improve themselves by. But still it will be objected, that a young Man in this Condition will go near to forget his Mother-Tongue; and that, being kept from People of good fashion, he will grow thereby so bashful that he will hardly dare to peep into the World.

Sophr. No such thing. For first, as to his forgetting of his Mother-Tongue, he will never so forget it but that he will quickly be able to recover it. But however, to prevent that Inconveniency, I would allow my young Gentlemen the receiving of Visits from their Friends and Relations in the Holy-days. And besides, there might be an Academy set up for every College, to learn in English at set hours, these Exercises so fit for a Gentleman; viz. Fencing, Riding the great Horse, Dancing, &c. Now, to answer the other part of your Objection, a short time will make a bashful Young Man forward enough to appear in Company. If one has but wherewithal to appear in a good Garb, there is in Man an infallible principle of Vanity that will help to put him forward.

In

In fine, I would have the Masters of every College to be themselves well bred and polite, of a sweet and genteel Conversation, and as little pedantick as might be. For it is most certain, that Pedantry, as well as Poverty, has brought a great disrepute upon Learning.

Phil. You say right. But I have one Objection more to make you.

Sopbr. What is that, *Philaetbes*?

Phil. The newness of the Thing, that will scarce be acceptable to so many Admirers of old Methods; who would think their Children undone, if they went never so little out of the old Road. And this their Prejudice (you must think) will be back'd by those Persons whose Interest it is to keep up the Modern way of Schooling.

Sopbr. I have only delivered my Opinion, and given Reasons for it. Which I shall back with *Monsieur Montagne's* Exemple, who had the fortune to learn the Latin Tongue much after this manner. If what I have said be relished, I am satisfied: If not, I must be contented.

Phil. For my part, I like it extremely well. And, to conclude our present Discourse, let me beg a favour of you.

Sopbr. Pray, what is that?

Phil. I am so taken with the Thoughts of Geography, that I am absolutely resolved to learn it; and I must beg your Assistance in it.

Sopbr.

Sophr. You shall have it, *Philaetbes*, for I think nothing too much for your Service. And I am much mistaken, if you do not find it as pleasant and useful a piece of Learning as any you can fix upon.

Phil. I do not doubt it in the least, dear *Sophonius*. And I am resolved so to give my mind to it, that I hope in a short time to be too hard for those who jeered me lately for want of skill in it.

The Second Discourse.

*Of the Heavens, and the Stars thereof,
with a particular Account of the Sun
and Moon.*

Sophonius, What do you think of it now, *Philaetbes*? are you still of the same mind as to Geography?

Phil. You cannot Imagine how eager I am for it, and methinks the whole World it self is not able to satisfy me. In short, I look upon my self as a Citizen of the World, and I will know of what Latitude my Right is.

Sophr. Softly, *Philaetbes*, softly. You will find the World big enough, I warrant you.

Phil. Let us leave, I pray, this Prologue, and enter upon the Matter. Come on, I long to

to Travel the world about, Shew me the way, and I shall follow you.

Sopbr. But what do you mean by the World?

Phil. I mean the Land of the Living, or the habitable World.

Sopbr. Why! do not you count the Heavens and the Air part of the World?

Phil. Yes sure, when I mean the whole Fabric of the World.

Sopbr. Now you must know the Description of the whole World together is called Cosmography. Whereas the proper Object of Geography is only the Terrestrial Globe, which consists of the Earth and Waters.

Phil. Pray tell me then, *Sopbromius*, in the first place, whether you think the World had a beginning or no, or that (according to some Philosophers.) it is from all Eternity.

Sopbr. I believe rather, according to the Holy Writ, that it was Created (or made of nothing) some thousand years ago by that Supreme and Spiritual Being we Worship, an Immortal, Immutable, Incomprehensible, All-Wise, and All-mighty God.

Phil. How many thousand years do you reckon it since the Creation?

Sopbr. We reckon it commonly 3949 years from the Creation to our Saviour's Coming upon Earth. To which if you add 1681 years since Christ's Coming, the whole amounts to 5630 years. Thus much for the Origine of the

the World, now let us explain (if you will) the Parts thereof.

Phil. That I wait for with great Impatience.

Sophr. Well. But the Question is, whether you mean to be a Cosmographer, or simply a Geographer?

Phil. That I leave to you, *Sophronius*.

Sophr. Come on then, *Philasethes*. We are going to begin a great Voyage, and we must take off our Minds from the Earth to raise them as far as Heaven.

Phil. For my own particular, I shall fore up as high as I can.

Sophr. To say nothing of the Empyrean Heaven (the highest, largest, and most Glorious Heaven, supposed to be reserved for the happy Mansion of the Blessed) the Astronomers reckon ten several Spheres or Orbs, all contained one within another. The highest of which is called *Primum Mobile*, or the first Moveable, which carry's all the lesser Orbs contained within and under it about from *East* to *West*, and so to the *East* again, in the space of twenty four hours, or one whole day. Next to this Orb is the Chrystalline Heaven, thought by some to be that which appears so pure blew unto our sight. Below this Orb is that which contains all the fixed Stars in it, and is called the Firmament. To which succeed the seven several Orbs of the Planets; the highest of which is *Saturn*, then *Jupiter*, *Mars*, *Sol*,
or

or the *Sun*, *Venus*, *Mercury*, *Luna*, or the *Moon*. Which that it may the better occur to your Memory, do but mind this Latin Verse,

Post SIM SUM sequitur ultima Luna subest.

For the three Letters of *SIM* serve to denote severally *Saturn*, *Jupiter*, *Mars*; and the three Letters of *SUM*, *Sol*, *Venus*, *Mercury*.

Phil. But which are those you call the fixed Stars?

Sophr. A Numberless Number of Stars, contained in the eighth Orb; and called fixed Stars, not that they be immovable, but because their natural Motion is but slow, and that they keep always the same distance. Which the Planets do not.

But there is besides a visible Difference betwixt the fixed Stars and the Planets. For it is proper for the fixed Stars to sparkle, or shine with a trembling light, but chiefly in a Serene weather. Whereas the Planets, as the Moon among others, send forth steady beams, and void of all vibration. Except *Mars*, *Venus*, and *Mercury*, which are observed sometimes to sparkle; but neither so much, nor so constantly, as the fixed Stars.

But how long do you think, *Philaethes*, that the fixed Stars are finishing their natural Course?

Phil. A long time, sure enough, if their Motion be so slow, as you said before.

Sopbr. According to *Tycho Brahe*, the Wonder of our Age in point of Astronomy, they are no less than 25412. years before they come to their first station. And yet in his Calculation he falls very much short of *Plato*, who reckoned it 49000. years, which therefore was called the *Platonick Year*. And, according to the Opinion of those Times, that Year being expired, the World is to begin anew in the same Manner, and under the very same Circumstances as formerly.

Phil. What? Then at that rate I must about 49000. years hence return into my Mothers Womb, be new-born, suck, go to School, and there be soundly lashed again. Then you and I, after that vast distance of time, shall meet here, and hold the same Discourses we do now. A pretty Conceit indeed! But, if a Man has got an imperious Scold, or a Wanton Flurt, to his Wife, is he to have her again?

Sopbr. The very same, according to that great Philosopher *Plato*.

Phil. So *Socrates* must have his *Xantippe* again, and *Octavius* his *Messalina*. 'Tis a hard fate, and for my part (if I were to choose) I had rather lay for ever in the Dust. In the mean time I know not what to think of it. There is no new Occurrence whatsoever, but what I fancy to have been so a long time since.

Sopbr. A little matter, I see, would inveigle you into that Opinion; especially if one should
prove

prove it by Scripture, as by these Words of the Wise, that there is no new Thing under the Sun. But I would not have you, *Philalethes*, to be too much affected with it. And let us now proceed to a Survey of those fixed Stars which the Ancients took special notice of.

Phil. Which are those, I pray, dear *Sophronius*.

Sophr. They reckoned 1022. of them in the *Northern* and *Southern* Hemisphere, the least of which is eighteen times bigger than the Earth. And, that they might be conveniently discerned from one another, they reduced them to forty eight Signs or Constellations, and gave them severally the Names of Living Creatures and other Things to which they fancied them most like. Twelve of these, being the chiefest, are found in the Zodiack; 21. in the *Northern* Hemisphere; and fifteen in the *Southern*. To which last *Frederick Houtman* has added since thirteen more, discovered by him while he was in *Sumatra*.

The Twelve chief Constellations, otherwise called the Signs of the Zodiack, or the Twelve Houses of the Sun, are as followeth, with their several Figures, so much used by Astrologers.

Viz.

<i>Aries</i> ,	♈.	<i>Libra</i> ,	♎.
<i>Taurus</i> ,	♉.	<i>Scorpio</i> ,	♏.
<i>Gemini</i> ,	♊.	<i>Sagittarius</i> ,	♐.
<i>Cancer</i> ,	♋.	<i>Capricornus</i> ,	♑.
<i>Leo</i> ,	♌.	<i>Aquarius</i> ,	♒.
<i>Virgo</i> ,	♍.	<i>Pisces</i> ,	♓.

I shall pass by the other Constellations, both for brevity sake, and because they are of less use.

Phil. But what's the meaning of that large, whitish, and bright Tract of the Sky so observable in a clear Night?

Sophr. I suppose you mean that which the Greeks called *γαλαξία*, the Latines *Via lactea*, and We from thence the *Milky Way*. 'Tis nothing else but a great Multitude of little Stars gathered together in this part of the Sky, which give but a confused Light, and are not discernable to the eye but with a prospective-glass.

Phil. But how comes it, *Sophronius*, that in a clear Winter-night we see in and about the Constellations an infinite number of lesser Stars, which are hardly seen at all in Summer time?

Sophr. Because in Winter time the Nights are darker, and so any thing of light is the more conspicuous and obvious to the eye.

Now you must know, *Philalethes*, that the Astronomers divide the biggest and brightest of the fixed Stars into six several Degrees of Magnitude. And they reckon fifteen of the first Rank, forty five of the second, two hundred and five of the third, four hundred and seventy seven of the fourth, two hundred and seventeen of the fifth, and forty nine of the sixth. To which if you add besides five Cloudy, and nine Dark, you will find the compleat number

Number aforeſaid of one thouſand twenty two.

Thoſe of the firſt Magnitude are reckoned to be each of them an hundred and ſeventy times bigger than the Earth; thoſe of the ſecond Magnitude, ninety times; of the third, ſeventy two times; of the fourth, fifty ſix; of the fifth, twenty ſix; and of the ſixth, eighteen.

Thus much for the fixed Stars. Now let us come to the ſeven Planets, whoſe Names follow here according to their reſpective height, with their ſeveral Figures as they are uſed by Aſtrologers.

Viz.

<i>Saturn,</i>	<i>♄.</i>	<i>Sol,</i>	<i>☉.</i>
<i>Jupiter,</i>	<i>♃.</i>	<i>Venus,</i>	<i>♀.</i>
<i>Mars,</i>	<i>♂.</i>	<i>Mercury,</i>	<i>☿.</i>
	<i>Luna,</i>	<i>☾.</i>	

Phil. How come they to be called Planets?

Sophr. They are called Planets, that is, wandring Stars, not that they be ſubject to any uncertain or irregular Motion; but becauſe they have, either in reſpect to themſelves or the fixed Stars, a different Motion, and that they are not always at an equal diſtance from each other.

But the *Copernicans* deny the Sun to be a Planet,

Planet, and will have it to be a fixed Star. And, whereas we say the Sun turns about the Earth; they hold quite contrary, that the Earth turns about the Sun. I suppose you have heard of this Opinion by the by, and (for ought I know) it may be true enough. But we will not insist upon it.

Shall I now tell you the several (but prodigious) Distances of the Planets from us? You will be amazed at it. But thus we have it from approved Astronomers. *Saturn* is fourteen Millions of Leagues distant from us; *Jupiter*, eight Millions of Leagues; *Mars*, twelve hundred thousand; *Sol*, or the *Sun*, eleven hundred thousand; *Venus*, a hundred and sixty seven thousand; *Mercury*, sixty four thousand; and *Luna*, or the *Moon*, betwixt thirty and forty thousand Leagues. And yet the Planets are nearer than any of the fixed Stars.

Phil. This is past any mans Belief but an Astronomers. But, if it be so, sure these Celestial Bodies must be of a vast Magnitude to be seen at such a distance.

Sophr. The Sun, which is counted by much the largest of all the Planets, is by some reported to be two hundred times at least bigger than the Earth; and by the most moderate, a hundred and sixty six times. Then they make *Jupiter* ninety five times at least bigger than the Earth; and *Saturn*, ninety times. *Mars* they reckon to be one third

third part bigger than the Earth; *Venus* lesser by thirty seven times; the *Moon*, by thirty nine times; but they make *Mercury* much lesser.

Phil. Pray, what Planet is that you call *Venus*?

Sophr. The same which is more commonly known by the name of Morning-Star in the Morning, and of Evening-Star in the Evening.

Phil. But how comes it, *Sophronius*, that whilst the Sun appears above our *Horizon*, none of the other Planets, and indeed no Star, is seen?

Sophr. The Reason is plain. For a greater Light drowns a lesser; and the Sun, being as it were the source of Light, must needs have a greater proportion of it than any of the Stars.

Phil. Are you then of Opinion, that the Stars have no Light of their own?

Sophr. I do not say so. But it is credibly thought, they borrow the greatest part of their Light from the Sun. And therefore it seems that God has placed the Sun in the midst of the Planets, that those above and beneath it might equally partake of its Splendor.

Phil. So much for that, *Sophronius*; I desire now to understand their Motion.

Sophr. To clear this Point, you must know that those Philosophers who hold the Sun moves about the Earth (which is the vulgar

Opinion) suppose two several Motions of the Stars in general. The one Natural or Proper, from *West* to *East*; and the other Violent, from *East* to *West*. And they attribute the Cause of this last Motion, as I have already hinted, to the great Orb called *Primum Mobile*, which turns from *East* to *West* round the World with an equal rapidity within the space of twenty four hours, and with it hurries away all the lesser Orbs. Which is observable in the Sun particularly.

Whereas, according to the Natural Motion of the Stars from *West* to *East*, 'tis to be observed amongst the Planets, That cold *Saturn* does not finish its Course but within the Compass of almost thirty years; bright *Jupiter* finishes his in about twelve years; fiery *Mars*, within little less than two years; the *Sun* in one year; fair *Venus*, in one year and a half; *Mercury*, in something less than half a year; the *Moon*, in twenty seven days and about eight hours.

Phil. I do not understand these contrary Motions. It is apparent, as you say, that the Sun moves daily from *East* to *West*, and so goes round about the World. But how can it at the same time move by a proper motion of its own a quite contrary way, that is, from *West* to *East*? How can any thing go backward and forward at the same time? This is past my Understanding.

Sophr. Do but suppose a small Fly upon a Globe to run through the *Ecliptick* Line, which shews the proper Motion of the Sun.

Phil. What then, *Sophronius*?

Sophr. Then turn the Globe never so much about from *East* to *West*, still you will find that the Fly in the mean time gets forward in her course from *West* to *East*. And, if you do so turn the Globe about, that, as often as it turns quite round, the fly may advance one Degree in her Course *Westward*; you will find that by turning the Globe three hundred sixty five times, the fly shall be gone as many Degrees in a quite contrary way. Such is the Yearly Course of the Sun from *West* to *East*, according to which it goes about one Degree every day, and in a years time runs over the twelve Signs or Constellations called the Houses of the Sun.

Phil. You have explained it to me with as much clearness as may be.

Sophr. Now from this Course of the Sun is come the Distinction and Distribution of Time, which is the measure of Motion. And, to proceed *à minori ad majus*, there is first a Minute, next an Hour, then Days, Weeks, Months, Seasons, Years. Threescore Minutes go to an Hour, twenty four Hours to a natural Day, seven Days to one Week, four Weeks to a Month according to the Moon, and some odd dayes more to a Month of the Sun. Now twelve of these Months make the four Seasons
of

of the Year, viz. three Months to each Season. And so the Year does consist of twelve Months, fifty two Weeks, or of three hundred sixty five Dayes and about six hours. Except it be a Leap-year, and then there is three hundred sixty six Days.

Phil. Pray, what's the Occasion of this additional Day?

Sophr. You must know that (according to the old *Julian Account*) the Year consists of three hundred sixty five Days and six hours. Now these six hours, at four years end, come to twenty four hours, that makes up a Day, which is added to the Month of *February*. And then that Year is called Leap-year, which by the *Romans* was named *Bissextilis*.

As to the Months of the Sun, as we reckon them, some have thirty Days, some thirty one, and *February* alone has but twenty eight, except every Leap or fourth year, when it has twenty nine Days. Which that you may find out readily at any time, do but mind these following Verses;

Thirty Days hath *November*,
April, *June*, and *September*;
 Of eight and twenty there is one,
 And the rest are of thirty one.

Phil.

Phil. But did the Ancients hold the same Year as we do?

Sophr. Before the time of *Julius Caesar* they held several sorts of Years. But that Emperour, forty years before Christs Birth, ordained the Year to consist of three hundred sixty five days, and six hours.

Phil. Pray, tell me the Difference of the Old and New Style, and what's the Ground of it?

Sophr. The Old Style, which the *Greek* Church and most Protestants keep still, is the old *Julian* Account, which for many Ages seemed to have no sensible Error. But in process of time it was discovered to be not altogether agreeable with the natural Motion of the Sun, the *Julian* Year exceeding the true Solar Year ten Minutes, and forty eight Seconds; which caused the Equinoxes and Solstices yearly to change their Places, and fly back so many minutes and seconds. Whereupon Pope *Gregory* the *XIII.* by the advice and direction of *Antonius Lilius* and other excellent Mathematicians, corrected the Calendar, making the Year to consist of three hundred sixty five days five hours, forty nine minutes, twelve seconds. And, to the end that the vernal Equinox (which then was on the eleventh of *March*) might be reduced to the one and twentieth of *March*, as it was at the time of the first *Nicene* Council; he commanded ten days in *October* to be left out, so as the fourth

fourth day of *October* was accounted for the fourteenth day. This hapned in the Year fifteen hundred eighty two, from which time this Account was called the *Gregorian* Account; and so came the Distinction of Old and New Style, the Old according to the *Julian*, and the New according to the *Gregorian* Account.

Phil. Thus the Nations that hold the New Style do reckon ten days before us; and, when it is with us for exemple the first day of *May*, 'tis the eleventh with them.

Sophr. Right. But, as we differ in the Style, so we do from some Nations as to the beginning of Years and of Days.

Phil. How so, my *Sophronius*?

Sophr. You know that in most Parts of *Europe* they begin the Year, as the *Romans* did, on the first of *January*. And so we do here in *England* in some respect, therefore we call it *New-Years-Day*. But upon a Civil Account, and for our Date of Buying or Selling, &c. We begin the Year (and so do the *Spaniards*) eight weeks after, viz. upon *Lady-Day*, the twenty fifth of *March*. So the *Jews*, after they got out of *Egypt*, began their Year much about the same time in *March*, to which answered in part their Month *Nisan*; Whereas before they were wont to begin it in their Month called *Tisri* or *Ethanim*, which comprehended part of our *September* and *October*.

Now the *Venetians* begin theirs the first of *March*,

March. And so did *Romulus* the Founder of *Rome* ; for 'tis observed that before *Julius Cæsar*, the Month of *July* was called *Quintilis*, or the fifth Month from *March*. The *Moscovites*, who follow the *Greek Church*, begin their Year the first of *September*, upon this ground. For they believe the World began in *Autumn* ; and, whereas we reckon our Years from the Coming of Christ into the World, they reckon theirs from the time of the Creation.

As for Days, you must know there is a Natural and Artificial Day ; that containing Day and Night, and consisting of twenty four hours ; this beginning at Sun-rising, and ending at Sun-set. The Natural Day is reckoned in most parts of *Europe* from one midnight to another, reckoning twice twelve hours ; that is from *Midnight* to *Noon* twelve hours, and from *Noon* to the *Midnight* following twelve hours more, beginning with one, two, three, &c. But in *Italy* (as formerly in *Athens*) they reckon twenty four hours all along without coming back to one, as we do ; and that from *Sun-set* to *Sun-set*. At *Nuremberg*, and some other Places of *Germany*, they reckon their Days (as the Ancient *Jews* and *Chaldeans*) from one Sun-rising to another ; beginning with one a Clock, and so on to the twentyfourth hour. 'Tis true the *Jews* had (besides their Civil Day) a Sacred Day, destined for Holy Exercises, which began at *Sun-set*, and continued till the

the next Sun-set. In *Moscovy* they reckon their Day from the Sun-rising till Sun-set; and, when the Sun is gone down, then they reckon the first hour of the night, and so on, till the Sun appearing again over their *Horizon* finishes the time of their Night and begins with them a new Day.

Phil. I have heard very often of *Equinoxes* and *Solstices*, but could never understand clearly what they are. Be pleased to give me as clear an Account of them as you can.

Sophr. In Order to that you must know there are yearly two *Equinoxes* and two *Solstices*; a *Vernal* and an *Autumnal Equinox*, a *Summer* and a *Winter Solstice*, which begin the four several *Seasons* of the Year. For the *Vernal Equinox* begins the *Spring*; the *Summer Solstice* the *Summer*; the *Autumnal Equinox*, the *Autumn*; and the *Winter-Solstice*, the *Winter*. And, as in the *Equinoxes* the Days and Nights are of an equal length; so in the *Summer-Solstice*, we have our longest Days, and in the *Winter-Solstice* our shortest. Now the *Equinoxes* are so called from the Latin *Aequinoctium*, because then the Days and Nights are of an equal length. And the *Solstices* have their Name from the Latin Word *Solstitium*, which signifies a stop of the Sun. Not that the Sun's Motion be stopped, except from coming nearer us than the *Tropick of Cancer*, and from going further from us than the *Tropick of Capricorn*. But of this you shall hear more hereafter.

Phil.

Phil. What shall we then proceed upon?

Sophr. Next to the Glorious Brightness of the Sun, the Vastness of its Body, the prodigious Distance thereof from us, and its continual Motion to or from us, let us now consider the Influence of it by its Heat, which in a manner is the Life of Plants and Animals. For, as without the Light of the Sun the whole Frame of Nature should be buried in Darkness; so, without the Heat that arises from it, no living Creature could live. Neither is this Heat inherent in the Body of the Sun, but it is wonderfully produced (as Philosophers teach us) by the Reflection of its Beams. Where-with the Air being warmed fomented and keeps alive all *Vegetables*.

Phil. But what is an Eclipse of the Sun?

Sophr. 'Tis a privation of its beams in some part of the Earth, caused by the Interposition of the Moon betwixt the Sun and that part of the Earth. Which happens when the Moon being in the same Sign and Degree the Sun is in, it falls out that these three Body's, the Sun, the Moon, and the Earth are *diametrically* opposite.

Phil. And how is the Eclipse of the Moon?

Sophr. This you shall know, when I have first made a short Description of it. The Moon, (as I have already observed to you) is the lowest of all the Planets, and consequently that which is nearest to us. Therefore her Influence must needs be the stronger over all *Sublunary* Things.

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'Tis a Planet much subject to Change, and seen in divers Shapes; that sometimes shines, and sometimes does not. And, when it does, it is more or less, according to the proportion of Light it receives from the Sun. We call it new Moon, when it is in conjunction with the Sun; and then it gives us no light, because the dark part of it is to us ward. But four days after it makes its first appearance in the shape of two bright horns, the rest of her Body being dark; and then is the first Quarter. Being a Week old, half of it appears bright, and the other half dark; and then it is called a *Crescent*, or half-Moon. Thus it increases for a week more, till it comes to be full; and then, being diametrically opposite to the Sun, this strikes its Beams upon that the more fully. Four days after full Moon, it begins to Decrease and lose its light (which is called the Wane of the Moon;) and three days after this it appears again in the form of a *Crescent*. So it loses its Light gradually, till it is New-Moon again.

Phil. So I perceive that the nearer the Moon is to the Sun, the less light she receives from it; and on the contrary, the further off, the more luminous she is. But, pray, tell me what Course does this Planet take?

Sophr. The very same as the Sun's. Only 'tis to be observed that, whereas the Sun is a whole Year finishing its Course, the Moon performs hers in a Month.

Shall I tell you now, *Philaethes*, some Influences

fluences of the Moon? 'Tis the Moon that brings the Fruits of the Earth to Maturity and their ultimate Perfection. 'Tis the Moon that influences very much upon Generations, upon great Belly's, and Labours. 'Tis this Planet that contributes greatly to the nourishment and growth of living Creatures. Inasmuch that it is observed, the very *Oysters* encrease and decrease with to the Moon.

But, as the Sun, so the Moon is subject to Eclipses. Now an Eclipse of the Moon is nothing else but its privation of the Light of the Sun, occasioned by the Interposition of the Earth betwixt the Sun and Moon. Which does not commonly happen but upon the full of the Moon, when this Planet is *diametrically* opposite to the Sun.

Thus much for the Sun and Moon, whose Influences (of all the Planets) are most taken notice of.

Phil. But what do you think; *Sophronius*, of the World in the Moon?

Sophr. Ay Marry, Now you started a pretty Question indeed; but it is not for me to satisfy you whether or no there be such a Thing in Nature. *Lucian*, a man of eminent parts, (but as base an Apostate from the Christian Faith in which he was bred) was the first that writ of this new World in the Moon; but then he proposed it as a meer Fancy of his own, and so he affords us in one of his Dialogues a conceited Character of it. But of late times

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that Fancy of his is become a Matter of more serious debate. Infomuch that some have laboured with great pains to make it probable, that there is another World in the Moon, Inhabited (as This is) by People of divers Languages, Customs, Policy's, and Religions. And, more than so, some Means and Ways have been proposed to Consideration for maintaining an Intercourse and Commerce between That and This. The like Indeavours there are to prove that the Earth is a Planet. And, long before *Lucians* time, *Aristophanes* (a famous Man amongst the old *Greek* Poets) speaks in one of his Comedy's of a City of *Cuckoos* in the Clouds, which he calls *Nephelocccygia*.

Phil. I must confess these are pretty Conceits.

Sophr. However 'tis observable, that great Truths have been started upon slight Presumptions. And truly it goes hard with some to believe, that such an infinite Number of great and glorious Stars as there are in the Heavens should be appointed only to wait upon this little and dirty Spot of Earth. I say no more, because it is time to conclude.

Phil. I forgot my self, and should have considered how precious your Time is. But I am so ravished with this kind of Learning, that what Knowledge you have already infused into my Mind do's but inflame my Desire of knowing more.

Sophr.

Sophr. I am very glad to see you relish these Things. And, as for my Time, you may assure your self that I think no Time lost but what I do not spend at your Service. At our next Meeting, if you will, we shall discourse of the Air and Meteors.

Phil. When it shall stand with your Convenience.

The Third Discourse.

Of the Air, and the Meteors.

P*Hilalethes*, I come again to you, *Sophrinius*, with a greedy mind to learn how the World stands.

Sophr. Well *Philalethes*, I shall endeavour to satiate your Greediness ; and, were you a *Camelion*, you should not want for Air, I assure you. For 'tis the Air (as I remember) which is the Subject fixt upon for our present Discourse. And I can afford you three Services of it, all of a different Nature.

Phil. I perceive you intend to Air me to some tune.

Sophr. Ay, but take heed of an After-clap. For I shall come upon you at last with Thunder and Lightning.

Phil. I fear it not, provided it be such as may enlighten my Understanding.

Sophr. To make then no further Preamble, you must know the Air is a thin, transparent, luke-warm, and moist Element, that surrounds the Globe of the Earth. 'Tis the Air that penetrates the substance of mixt Body's, and which makes way for Generation. 'Tis the Air that serves for our Respiration, for Vocal and Instrumental Musick, &c. and wherein the Birds of the Air move with great Swift-ness. In fine, 'tis the Scène where Nature acts those Wonders we call Meteors.

The same is by Pilosophers divided into three Regions, viz. the Upper, Middle, and Lower Region.

Phil. These are, I suppose, the three Services you intend to treat me with; a very Airy Diet.

Sophr. You found it out. But to be serious, the Upper Region begins from the Sphere of the Moon, and reaches to that part of the Air where the Vapours condensate. The Middle Region, which follows next, is bounded by the reflected Beams of the Sun. And the Lower reaches from thence to the Surface of the Earth. But, because the Sun-Beams reach higher in Summer-time than they do in Winter, therefore 'tis to be concluded, that in Summer the Middle Region is lesser, and the Lower greater, than in Winter.

Now 'tis the General Opinion of Philosophers, that the Supream (or Upper) Region is accidentally warm, either by reason of the fiery
and

and Sulphureous Exhalations which ascend thither, or because of the violent Motion of the Spheres from *East* to *West*, or lastly (according to *Aristotle*) because it is next to the Elementary Fire which he places in the Concave of the Moon. The Middle Region is cold. And the Lower is sometimes warm and sometimes cold, according as the Sun affects it with its Beams by its nearness or remoteness.

Phil. But what is that we call Wind?

Sophr. 'Tis nothing else but an Agitation, or a strong Motion of the Air; occasioned chiefly by the Sun, and by Vapours and Exhalations. For the Sun by its natural brightness does rarify the Air, and this being rarify'd requires more room, and so struggles hard for't. On the other side, the Exhalations from the Earth and Vapours from the Water being raised in great quantity and with some Violence up to the middle Region of the Air, do often occasion a Wind by their Conflict with the cold Air they meet in that Region. But there are other Causes assigned for the Wind. As the Clouds, when they rarify, or when by their descent, they press the Air. To which add the Snow and Ice, (especially in Mountainous places) that often turn into Wind. Which is the Reason why the Streight of *Magellan*, having on both sides of it high Mountains always covered with Snow, is subject to those Counter-Winds, which beat with equal Fury on all parts thereof; Inſomuch that, which way ſoever a man

Steer his Course, he shall be sure to have the Wind against him.

Now the Winds move cross ways, that is, neither upwards nor downwards. The Reason is, because when the Air is pressed down still there arise more Vapours which beat it back.

Phil. But how many sorts of Winds do you reckon?

Sophr. A great many. And they are chiefly divided into Cardinal, and Collateral. We call Cardinal Winds those that blow exactly from the four Quarters of the World, *North*, *South*, *East*, and *West*; from whence we call them generally *North*, *South*, *East*, and *West* Winds.

Phil. But how shall I know the one from the other?

Sophr. If you do but know the *North*, you know all. For it is but turning your face straight to the *North*, and then you have the *East* on your right hand, the *West* on the left, and the *South* just behind you opposite to the *North*.

But then by the *East* you must understand the East Equinoctial, that is where the Sun rises in an Equinox; and accordingly by the *West* you must understand the West Equinoctial, where the Sun Sets in an Equinox.

Otherwise you know, that when the Sun has past the Equinoctial, it Rises and Sets gradually higher or lower in our *Horizon*. From
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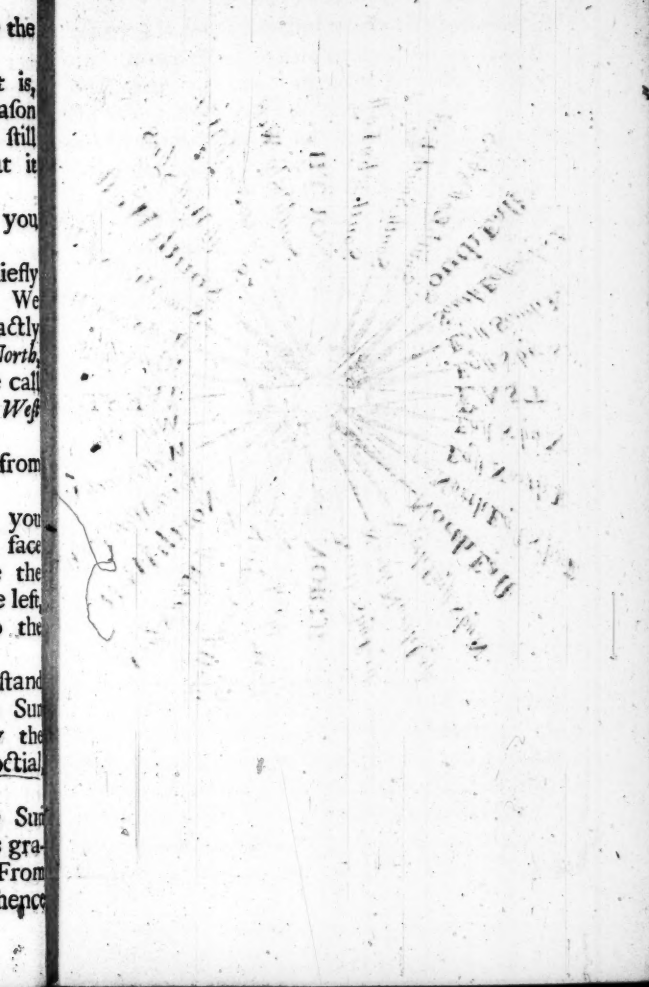
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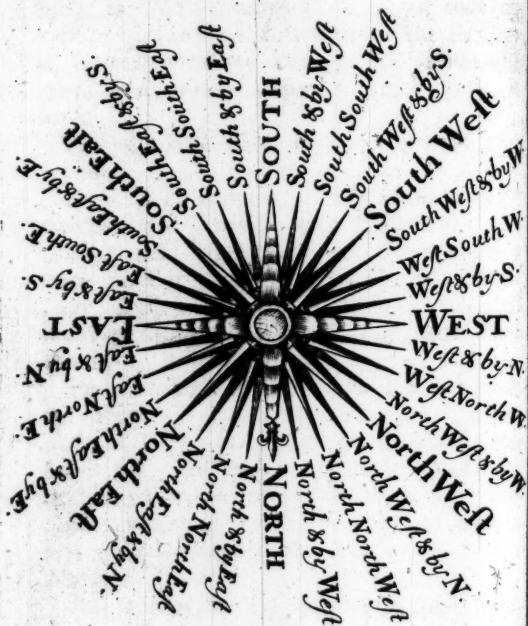
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whence is come the distinction of *Summer-East* and *Winter-East*, *Summer-West* and *Winter-West*. For in *Summer* time the Sun rises betwixt the *North* and the *East* Equinoctial; and in *Winter* time, betwixt the *East* Equinoctial and the *South*. And accordingly it sets in *Summer* betwixt the *West* Equinoctial and the *North*; and in *Winter*, betwixt the *West* Equinoctial and the *South*.

Phil. Now what do you mean, *Sophronius*, by Collateral Winds?

Sophr. You must know there are no less than 28. of these, that is, seven betwixt two Cardinal ones; as betwixt *North* and *East*, *East* and *South*, *South* and *West*, *West* and *North*. Amongst which, those that are just in the middle betwixt two Cardinal Winds are counted the chiefest. So, reckoning the four Cardinal Winds, there are in all 32. Winds, the Names of which you have in their Order in the following Scheme.

See the Figure of the Winds.

And now, *Philaethes*, I must observe to you,
 1. That in *Spring* and *Autumn* Winds are commonly more brief and more violent than either in a hot *Summer* or a frosty *Winter*. 2. That Winds are more frequent from the *East* than from the *West*, especially in the *Torrid Zone*. In *England* the *East-Wind* is most common in

the *Spring*, and is counted an unwholsom Wind, both to Plants and Living Creatures, according to the Proverb that says, *Wind from the East is neither good for Man nor Beast*. But in *Summer*-time the *South-West* Wind does most times predominate. 3. That *East* and *North* Winds are commonly both colder and stronger than either *West* or *South* Winds, especially in our Zone. 4. That Winds are convenient for two things principally, that is for Navigation, and (except the *East* Wind) to purifie the Air.

Phil. There are those who pretend to foresee what Wind will blow. What do you think of it, *Sophronius*?

Sophr. I confess one may give sometimes a shrewd guess, & the Mariners (those *Amphibious* Creatures that live most upon Wind and Water) have a peculiar Gift that way. The Ancients guessed at it by the sight of some Birds, of a *Dolphin*, or of some Meteor or other. Now our Sea-men, when they see a small Cloud of a pale or blackish colour, they conclude a Wind from thence. So when the Sun does not rise clear, but seems to be spotted, or when it is overcast with a pale or a black Cloud, it presages either Wind or Rain. The same is observed of the Sun, if it look pale when it sets. And then, if clouded with black Clouds, 'tis a sign of a *North* Wind. The Moon, when it looks red, is lookt upon as a certain sign of windy weather, according to the Verse,

Pallida

Pallida Luna pluit, Rubicunda flat, Alba serenat.

And so is the Circle about the Moon. There are other Signs of Winds, as when the Sea makes a grumbling Noise inwardly. Lastly, a great deal of Rain is usually followed with a strong Wind.

Phil. What kind of Wind is that which is called a Trade-Wind?

Sopbr. 'Tis a Wind which blows constantly at a set time of the Year, and continues for a long time together. Such were the *Etesia* amongst the ancient *Greeks*, for so they call'd the *North-winds* that blew constantly every Year for 40. days together in the Dog-days.

Phil. What do you mean by an *Hurricane*?

Sopbr. A Tempestuous Gust of Wind, such as destroys most Ships at Sea that are in its way, pulls down Houses, and pulls up Trees by the root. The word is come from the *West-Indies*, and particularly from the *Caribby-Islands*, where they have once in two or three years (in *July*, or thereabouts) most dreadful *Hurricanes*, thus described by Sea-men. First, the Sun exhales a great quantity of Water from the Sea into a Cloud, and then it gushes down with great violence; followed with a terrible Tempest of Wind, which lasts about two or three hours, and sometimes longer. By which means the Sea rages so furiously that no Ship almost

almost can hold out, and few Houses at Land in its way escape being destroyed.

In *July*, 1666. The Lord *Willoughby* of *Parham*, sailing betwixt *Barbados* and *St. Christopher*, had the ill fortune to be lost in an *Hurricane*, with divers *English* Ships. In short, an *Hurricane* can be compared to nothing so well as to a violent Earth-quake.

Phil. Now you put me in mind of Earth-quakes, pray, what is the occasion of them?

Sophr. Nothing but *Subterranean* Winds that force their passage out of the Earth with great violence, whereby sometimes whole Cities are swallowed up. Witness so many fine Places in the *East*, that have been destroyed by Earth-quakes, the Falling-Sickness of most great City's in those Parts.

Phil. My Blood chills in my Veins with the dreadful Thoughts of Earthquakes and Hurricanes. Pray, let us leave this Subject.

Sophr. The next Thing that offers it self to our Consideration is the Meteors, those *Phaenomena* which are formed in the Air, and made either of Exhalations or Vapours raised up thither by the heat of the Sun and virtue of the Stars.

Phil. What difference do you put betwixt the Exhalations and Vapours?

Sophr. The Exhalations come out of the Earth, and are warm and dry; the Vapours from the Water, being both warm and moist.

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Those are proper for Fiery, and these for Watery Meteors.

Phil. Which of the three Regions of the Air is proper to Meteors?

Sophr. Some Meteors are formed in the Upper Region, some in the Middle, and others in the Lower. Which that you may the better apprehend, you must know in the first place, that some Meteors are Real, and others but Apparent.

The Real Meteors are either Fiery, or Watery. The first are Simple, or Mixt. Those we call Simple, that consist only of Exhalations; and Mixt, such as are of a courser and more viscous nature, consisting both of Vapours and Exhalations.

Simple, as,
In the Upper Region,

Fax, or *Candela accensa*, a burning Taper.

Trabs, or *Ignis Perpendicularis*, a Firy Beam.

Bolis, or *Faculum*, a Dart.

Capræ Saltantes, the Skipping Goats.

Scintillæ Volantes, the flying Sparks.

In the Middle Region,

Stella Discurrens, a shooting Star.

Stella Cadens, a falling Star.

Lancea Ardens, the Fiery Lance.

In

In the Lower Region,

Draco Volans, the flying Dragon.
Ignis Fatuus, Jack in a Lanthorn.
Ignis Lambens, the *Lambent* Fire.

• *Mixt*, as
 In the Upper Region,

Cometa a *Comet*, or Blazing-Star.

And in the Middle,

Fulgur, a Lightning.
Fulmen, a Thunderbolt.

Fax, or *Candela accensa*, is a thin fiery Meteor ; so called because of its resemblance to a burning Taper. *Trabs*, or *Ignis Perpendicularis*, is another sort of fiery Meteor shaped something like a Beam or a Pyramid, and burning all together. *Bolis*, or *faculum*, is a Meteor, that having caught Fire fly's upward, and looks like a Fiery Dart. *Caprae Saltantes* is an odd kind of Meteor, the matter whereof extends more in length than in breadth, and which having took Fire looks like so many skipping Goats. *Scintillae Volantes*, or flying Sparks, are nothing but Exhalations which spread themselves into many small parts, and by their motion take fire.

Stella

Stella Discurrens, a shooting Star, is a fiery Meteor of the Middle Region, of a Globous Figure, which conceiving Fire by the coldness of the Air runs with an oblique motion. Whereas *Stella Cadens*, or a falling Star, comes down, and so appears like a Star falling from the Sky. *Lancea Ardens*, a fiery Lance, is a long and well compacted Meteor, which having took fire falls down like a fire-brand.

Draco Volans, or a flying Dragon, is a courser sort of Meteor seen in the Lower Region; which being raised up on high, and clashing with a cold Cloud catches fire, and bends it self into some form of a Dragon. *Ignis fatuus*, well known in *English* by the Nick-Names of *Jack* in a *Lanthorn*, or *Will*. with a *Wisp*, is also a *Phenomenon* of the Lower Region, but of a courser nature. Which conceiving fire by the coolness of the night, and being tossed to and fro by the Wind, is apt to run into steep Places and Precipices; and so proves sometimes fatal to Travellers, that suffer themselves to be misguided by such a false Light. This Meteor is seen chiefly in Summer time, and most of all in hot Country's, as in *Aethiopia*, where they are very brief. When it appeared single, the Ancients called it *Helena*; and, when it appeared in two parts, they named them *Castor* and *Pollux*. Lastly, *Ignis Lam-bens* is a light and thin Meteor, without any heat; that sticks sometimes to mens cloaths or hair, and do's no hurt at all.

Cometa

Comets a Comet, or Blazing Star, is a Meteor consisting of great abundance of dry and viscus Exhalations, with some mixture of Vapours, both raised up to the Upper Region; where being well compacted together they take fire by their own motion, and appear to us in the shape of a great Star. Now there are three sorts of Comets, viz. *Crinitus* hairy, *Barbatus* bearded, and *Caudatus* with a tail. The first happens, when the *Pabulum* is thick in the middle, and thin in the outward parts; which makes the Comet look with a kind of dispersed light round about like ones hair about the head. The Bearded Comet is so called, when the outward parts reach no great way, and look something like a Beard about the Star. The Comet with a Tail is that which spreads it self a great way on one side or other, and appears to us like a Star with a long tail. Of this last sort there have appeared several in our Time; but none of so prodigious a length as that which is yet so fresh in our Memory, I mean the great Comet that was seen but last Year.

The proper Time (if any) for the appearance of Comets is *Autumn*, a Season which do's most abound with Vapours and Exhalations. Their Duration is uncertain, for it falls out according to the *Pabulum*. However it is observed, that the longest continuance of a Comet is six Months, and the shortest a Week.

Phil. But do you think, *Sophronius*, that Comets are Ominous?

Sophr. I confess it is a vulgar Opinion, grounded upon this Experience, that few Comets appear but what are followed with Wars, Pestilence, Famine, or some other publick Calamity. But, whether those Things be really influenced by the Comets (which are a natural Meteor) 'tis more than can be proved.

Now, to proceed,

Fulgur, a Lightning, is a flash of Fire that comes out of a Cloud. The matter of which Meteor being but thin and dispersed is the reason why it catches fire but here and there, and that it vanishes away presently.

Fulmen, a Thunderbolt, is a fiery Meteor that breaks out of a Cloud with great Violence; and dashes in pieces whatever it falls upon. And this is properly that which the Philosophers call *Fulmen Discutiens*. But there is another sort of *Fulmen* called *Terebrans*, because it do's only bore a hole where it chanches to fall. And lastly, there's *Fulmen Urens*, which do's nothing but blast, and therefore we only call it a blasting Lightning.

Phil. But what have you to say of the Thunder, which commonly go's along with the Lightning?

Sophr. The Thunder is a Noise caused by the clashing of the Exhalations against the sides of a Cloud, or by their breaking out of it. Now the

the Exhalations do either break out all at once, as when we break a Bladder full of Wind, and then we hear a great crack; or else at divers times, and then the noise is re-doubled. But, when the Exhalations do not break out of the Cloud, and remain shut up in it, then it is that we hear a Grumbling Noise.

Phil. How comes it that sometimes it Lightens without Thunder, and that on the contrary it sometimes Thunders without any Lightning?

Sophr. When the Cloud makes no great resistance to the Exhalations, then it Lightens without Thunder; and, when the Exhalation is not apt to catch fire, then it Thunders without Lightning.

Phil. But how comes it to pass that when the Thunder and Lightning go together, we sooner see the Lightning than we hear the Thunder?

Sophr. By the same reason that we sooner see the fire of a Cannon shot off at some distance, than we hear the noise of it. And that is, because our Sight is quicker than our Hearing.

Now *Philalethes*, I think we have done pretty well as to the fiery Meteors, let us proceed to the Watery ones. Some of which belong

To the Middle Region, *Viz.* { Clouds, Rain, and Snow;
 Some to the Lower, as { Hail, Dew, Hoar-Frost, Mist, Ice.

A *Cloud* is a great heap of Vapours raised up by the Sun and other Stars to the middle Region of the Air, and there condensated by the coldness of it. Now some Clouds are thin, bright, and airy, apt to be dissipated either by the heat of the Sun, or by the force of Winds; when others are thick, black, full of moisture, and consequently fit for the production of Rain.

For *Rain* is nothing else but a Cloud dissolved. And, when the Vapours are but thin, then it Rains small; when thick, the Rain is greater. Sometimes there has been seen Frogs, little Fishes, Bloud, Milk, Stones, Iron, and the like, come down with the Rain; but then it is, as the Philosophers call it, *Pluvia Prodigiosa*, a Prodigious Rain. Of all the Winds, none is so apt to bring Rain as a *South* Wind; and of all other signs of Rain, a pale Moon is one of the truest, according to the fore said Verse, *Pallida Luna pluit, &c.*

The *Snow* is a Meteor of a Spungious Nature, into which the Clouds do frequently dissolve themselves in Winter. For then, the middle Region of the Air being colder than ordinary, the Clouds are so affected, and (as it were) bound with the coldness thereof, that instead of Rain, they dissolve themselves into that white, fleece-like, and light Substance we call Snow. Some think the Clouds that produce this Meteor have almost in them as great a quantity of Exhalations as Vapours, and that those being extinguished in these, make that spungious substance which at last breaks, and comes fleeting down.

Hail is nothing else but Rain congealed in the Air; when the Rain coming down from the middle Region is surprized by the heat of the lower Region, and so congeals it self into hail to resist it. Whereby you may conclude, and 'tis found so by experience, that hot Country's are most of all subject to this kind of Meteor.

The *Dew* is but a thin and light Vapour, raised not much above the Ground. Which Vapour being condensed by a temperate cool Night, dissolves it self into small drops of Water, and falls down here and there. But then it must be calm weather, or else those light Vapours (if disturbed by any Wind) cannot condense.

Hoar-Frost, or *Rime*, is nothing else but a Winter Dew, congealed into the form of white Salt,

Salt, by the cold Air of a Winter-night.

Phil. And what is that, I pray, which is called *Honey-Dew*?

Sophr. 'Tis a Dew which Men gather upon some Trees, and the Bees upon some sorts of Flowers, qualified by a Spirit which those Trees and Flowers do sometimes exhale into their Leaves.

To proceed, a *Mist*, or *Fog*, is a Vapour that seldom rises but at the Sun-rising or Sun-set, and which the cold weather do's so condense by degrees, that it lies about us and darkens the very Air we breath. This Meteor (which sometimes has an unwholsome smell with it) is most common in *Autumn* and in *Winter*, when the Sun being farthest from us has not strength to raise those thick Vapours above us up to the middle Region.

Phil. Now you led me into a stinking Mist, pray, bring me out of it.

Sophr. Then you must come over the *Ice*, which is but congealed water. And that which helps the Congelation, besides the extream coldness of the Weather, is when there is some mixture of Earth with the Water.

And so, *Philalethes*, I have done with the Real Meteors, both Firy and Watery. I shall now briefly conclude with those Meteors which the *Greeks* call *Phasmata*, and the *Latins* *Meteora apparentia*.

Such as

Parbelius, or the Image of the Sun.

Paraselene, the Image of the Moon.

Iris, the Rain-bow.

Halo, a circle about the Sun or Moon.

Vorago, a great Gap.

Virgæ perpendiculares, the perpendicular Rods.

Parbelius is the Image of the Sun reflected upon a Cloud. And, when it happens that we see several Suns, it is but by the Impression of one Cloud upon another disposed to receive that Image.

The same it is with *Paraselene*, or the Image of the Moon.

Iris, or the Rain-bow, is the Representation of a Bow or *Semi-Circle* upon a Drizzling Cloud, which is caused by the reflected beams of the Sun. This is the most common of all these luminous Meteors, frequently seen either in a Morning or in an Evening, and that with these four Colours, red, green, white; and yellow. In the Morning it presages cloudy weather, and in the Evening it promises fair weather.

Halo, otherwise called *Area*, or *Corona*, is a white and bright Circle; which appears sometimes upon a Cloud, either under the Sun, or (which is most common) under the Moon.

Vorago,

Vorago, a great Gap, is an Exhalation raised up into the Air, where having contracted a brightness, but no where so little as in the middle part of it, as being thicker than the rest, makes this look like a great Gap. The lesser sort of which is more properly called *Hiatus*, or *Chasma*.

Virgæ Perpendiculares are nothing else but the Reflection of the beams of the Sun through a thick Cloud.

And so much for this time. In our next Conference, I shall entertain you with the Globe of the Earth.

The Fourth Discourse.

Of the Terr-Aqueous Globe in general, and the Earth in particular.

S*ophronius*. At last from the Heavens and the Air we are now come to our cloggy Element, the *Earth*, the Mother of Stones, Metals, Minerals, Plants, and living Creatures. This Earth where God has displayed the Wonders of his Infinite Wisdom, Goodness, and Omnipotency; but where Men shew daily their Madness, Malice, and Weakness. This Earth, the

General Stage of Mankind, where are daily acted innumerable ridiculous Farces and fatal Tragedy's. Which made a merry-conceited Author cry out, not without reason, in these Words, *Where shall a Man walk, and not meet with* Seignior Deliro? that is Mr. Mad-man. This Earth in fine, which has been of old a Prey to Ambitious and Greedy Conquerors, those cruel and blood-thirsty Leeches that take such delight in Blood, those Enemies and Disturbers of Man-kind, whose boundless Ambition and Avarice the World cannot satiate. These are the Idols that will not be appeased without Humane Sacrifices; These, the wild Boars that waste our *Arcadia's*. But where is the *Hercules*?

And now to give you a *Geographical* Account of this Earth, I must tell you in the first place, that the Earth and Waters together make a round Body, commonly called *Terrestrial*, but more properly *Terr-Aqueous*, *Globe*. *Terr-Aqueous*, because it consists of Earth and Waters; and *Globe*, from its Figure. Now this *Globe* is all surrounded with the Air, and hangs in the midst of it.

Phil. How is it possible for the Earth and Waters together to make a round Body, when there are so many Mountains, and some of them of a prodigious height?

Sophr. Those Mountains in respect to the *Globe* are nothing, if compared to the greatness of it. Witness *el Pico*, one of the highest Hills in the known World, and yet not above two Leagues.

Leagues high perpendicularly. And what is, I pray, the disproportion of two Leagues in a Body which no less than 1200. only to the Center, or the middle point?

Phil. Do you say so? How big is then the *Terr-Aqueous* Globe about?

Sopbr. It is no less than 360. Degrees, which at 20. Leagues (or 60. miles) a Degree comes to 7200. leagues, or 21600. miles. And yet 'tis all but a Point, if compared with Heaven.

Now the Diameter being in all round Bodies the third part of the Circumference, it follows that the Diameter of the Terrestrial Globe is 2400. leagues, and consequently the Semi-Diameter (which reaches but to the Center) 1200. leagues.

Phil. I am satisfied as to that, but I am gravell'd upon another account. For I cannot conceive how so great and so heavy a Body as is the *Terr-Aqueous* Globe (as you call it) should hang in the Air without any support, when if we throw but a stone into the Air it presently falls down.

Sopbr. The Reason is, because all heavy things do naturally incline to their Center, which is thought to have an attractive faculty to that purpose.

The next Thing we must consider is, that one part of the Earth is visible, and the other part under Water. Now the Question is, you will say, which of the two Superficies is greater, that of the Earth, or that of the Water. But

this we cannot tell certainly, because one great Part of the *Terr-Aqueous* Globe is as yet unknown to us. And, if we speak only of that Part which is known, there is no doubt, in case that we do reckon Lakes and Rivers, but that the Superficies of the Water exceeds that of the Land. Otherwise I find no great odds betwixt the Sea and the Land. 'Tis true, the Sea gets ground now and then, and incroaches upon the Land; but 'tis as true on the other side, that it leaves some places dry. Witness *Zealand*, which formerly was under the Sea, as we may guess by the great Bone-fishes and Anchors that have been digged up there; and now is a pleasant, fertile, and populous Countrey. But however all this is nothing, if compared to the whole Superficies of the Earth and Waters.

And so, *Philaethes*, we have hitherto spoke of the Earth and Waters as an Aggregate Body, now we must treat of them separately.

First You must know the Land, as it is more or less encompassed with Water, is principally divided

Into
Continents, Islands, Peninsules.

A *Continent*, otherwise called Firm Land, is a great part of Earth, but partly watered by the Sea; as *France*, and *Germany*.

An *Island* is a part of Earth invironed round about with Water; as great *Britain*, and *Ireland*.

A *Peninsule* is a part of Earth almost surrounded with Water, and only joyned to the Continent by a narrow neck of Land; as *Morea* in *Greece*.

Now in Continents, Islands, and *Peninsule's* are to be considered these natural Parts following;

Viz.

<i>Isthmus</i> , or Neck of Land.	<i>Pit</i> , or <i>Precipice</i> .
<i>Cape</i> , or <i>Promontory</i> .	<i>Marsh</i> , <i>Mere</i> , or <i>Fens</i> .
<i>Point</i> , or <i>Foreland</i> .	<i>Plain</i> , or <i>Champaign Ground</i> .
<i>Coast</i> , or <i>Sea-Coast</i> .	<i>Downs</i> .
<i>Shore</i> , or <i>Bank</i> .	<i>Heaths</i> .
<i>Hill</i> , <i>Mount</i> , or <i>Mountain</i> .	<i>Forrest</i> , or <i>Wood</i> .
<i>Valley</i> , or <i>Dale</i> .	<i>Desart</i> , or <i>Wilderness</i> .

An *Isthmus* is a narrow Neck of Land that joins a *Peninsule* to a Continent. A *Cape*, or *Promontory*, is a Hill that shoots forth into the Sea. A *Point*, or *Foreland*, is a narrow piece of Ground that runs point-wise into the Sea. A *Coast*, or *Sea-Coast*, is that part of a Country which lies by the Sea-side. A *Shore*, the very extremity of Land that borders upon any Water; and, if raised much higher than the Water, then it is termed a *Bank*. A *Hill* is a part of Earth rising more or less above the neighbouring Ground; but, if it be of a great height or extent, then it is also called by the name of *Mount*, or *Mountain*. A *Valley*, or a *Dale*, is a low Ground that lies at the bottom of a Hill,
or

or betwixt two distinct Hills. A *Pit*, or *Pre-
cipice*, is a great fall of Earth apt to strike with
horror those that look down into it. *Marsh*, *Meers*,
Fens, or *Marshy Ground*, is a Quantity of Land so
intermixt with Water, that it is not passable
but in a great Drought or hard Frost. A *Plain*,
or *Champaign Ground*, is a great plot of Ground
lying level and open. Which, if upon a Hill, is
called *Downs*; and, if overgrown with Heath,
is named a *Heath*. By a *Forrest*, or *Wood*, is
properly meant a great Plot of Ground cover-
ed with Trees unplanted and growing of their
own accord. Lastly we call a *Desart*, or *Wil-
derness*, a vast quantity of Barren and uninhabi-
ted Land.

Pbil. To make some useful Reflections upon
what is said, I desire to know in the first place
which are the chiefest and most remarkable
Islands.

Sopbr. To answer your Desire, there is first
in *Europe*, *Great Brittain*, and *Ireland*, both sur-
rounded with the Ocean. These are the two
largest Islands of *Europe*; and great *Brittain*,
as it is one of the best, so 'tis one of the great-
est Islands in the World. Then in the *Mediter-
ranean*, if you begin from the *Streights*, you
will find these goodly Islands *East* of *Spain*, viz.
Ivica, *Majorca*, and *Minorca*, the two last be-
ing the *Baleares Insulae* of the Ancients. Further
Eastward you will meet with *Sardinia*, and
North of that with *Corfica*. Then at the very
Foot of *Italy* is *Sicily*, the greatest Island in the
Mediterranean

Mediterranean. Not much Inferiour to which is *Candia*, formerly called *Creet*, lying *South-East* of *Morea* in *Greece*. In the *Archipelago*, or the *Aegean* Sea, (a Sea which swarms with Islands) the principal Island for bigness is the *Negropont*, formerly known by the name of *Eubæa*. As to the *Northern* Sea, called the *Baltick*, there are few Islands of any great note, besides *Zealand* and *Fuinen*; which make part of *Denmark*, and in the first of which you will find *Copenhagen*, the Royal Seat of that Kingdom.

Secondly, In *Asia*, the chief Islands for bigness, and first in the *Mediterranean*, are *Cyprus* in the furthest parts of the Sea towards the *East*. Next to which is the Isle of *Rhodes* lying *Westward* from it. But in the Ocean you will find, besides *Ceylan* a considerable Island in the *East-Indies*, these following incomparably bigger, viz. *Borneo*, *Sumatra*, *Java*, *Celebes*, *Mindanao*, *Lucon* or *Manille*, and *East of China* *Japon*.

Africk cannot boast of any great Island, besides that of *Madagascar*, which indeed is a vast Island, lying *South-Eastward*.

In the New World, or *America*, you will find near the Mouth of the River *Canada*, a great Island called *New-found-Land*; and in the Gulf of *Mexico*, *Cuba*, and *Hispaniola*. West of *Mare Vermejo*, or the *Vermilion* Sea, there's an Island as big as those three, which is called *California*; and South of the *Streights* of *Magellan* is also a large Island called *Terra del Fuego*, or the Land of *Fire*. The Rest are not to be compared in bigness to any of those.

But

But towards *Terra Borealis*, North of *America*, you will find three great (but wild) Islands, called *Cumberlands Isles*, lying betwixt the *Streights* of *Hudson* and *Davis*; and another near *Furber's Streights*. Further towards the East is *Iseland*, another great Island belonging to the King of *Denmark*, which is but thinly inhabited. The *Arctick* Circle passes through the middle of it.

Phil. What do you think, *Sophonius*, of *Europe*, *Asia* and *Africa*? Are they not surrounded with the Sea?

Sophr. They are so. But, because of their vast Extent, they are usually called by the name of Continents.

Phil. I have heard say of *Sicily*, that it was credibly supposed to have been in former times joyned to *Italy*. Pray, what ground is there for it?

Sophr. The Narrowness of the *Streights*, and the Shallowness of it, besides that the Land on both sides is very brittle. First, the *Streight* is so narrow, that where narrowest, it is not above a mile and a half broad; and 'tis observed that, at the taking of *Messina* by the *Carthaginians*, many of the Inhabitants saved themselves by swimming over into *Italy*. Secondly, It is so Shallow that upon a diligent Sounding 'tis found not to be above eight Fathom deep. Thirdly, the Land on both sides is so very brittle and so full of hollow Caverns and Chinks, that 'tis lookt upon as the effects of a working Sea

on

on this separation. To which add, that on the *Italian* Coast there stands a City of old called *Rhegium*, and now *Regio*, from the *Greek* Verb *ῥήγνυμι*, to break off or pull asunder, supposed to be so called upon this occasion. The Poets themselves give us to understand as much, when they tell us that *Neptune* with his *Trident* broke this Island off from the Continent in favour of *Jocastus* the Son of *Aeolus*, that so he might Inhabit there with the greater safety. And indeed, if by *Neptune* we understand the Sea, and by *Aeolus* the Winds, we may easily with some help from the *Mythologists* make a Story good enough of that Poetical Fiction.

Phil. By what you said the Thing seems very probable. And who knows but that our Island here was once joyn'd to the Continent of *France*, and broke off from it by the violence of the Sea and the fury of blustering Winds, or perhaps by some Earthquake? 'Tis you know, but twenty miles over.

Sophr. That's a great way, *Philalethes*, and I look upon that distance as the greatest Argument against it, though I know there be those who are apt to believe it. But let there be a Demurr upon that Subject; and, if you will, let us now take a Survey of the chief Peninsules.

First, I begin with *Africk*, the largest and truest *Peninsule* of all, being every where surrounded with Seas, except where it joyns to *Asia* by the narrow *Isthmus* of *Sues*. As for
Europe,

Europe and *Asia*, you may call them (if you will,) *Peninsules*, but not so properly as *Africk*. For, though they be almost surrounded with Seas, yet there is more than an *Isthmus*, in the case; *Europe* being joyned to *Asia* a good way by Land, and this last besides to *Africk* by the aforesaid *Isthmus*. But the *Northern* and *Southern America* make of themselves two large and perfect *Peninsules*, every where encompassed with Seas, but where they joyn together in the middle by the *Isthmus* of *Panama*.

Besides those great *Peninsules*, there are others of a less compass, and yet much taken notice of. As. 1. *Jutland* in *Denmark*, known amongst the Ancients by the name of *Cimbri- ca Chersonesus*, *Chersonesus* being Originally a Greek Word for a *Peninsule*. 2. The *Taurick Chersonese*, from the *Latin Taurica Chersonesus*, which is properly the *European Tartary*, lying betwixt the Black Sea and *Palus Mæotis*. 3. The *Thracian Chersonese*, from the *Latin Thracica Chersonesus*, a *Peninsule* which runs North from the *Hellepont* in *Greece*. 4. *Morea* (formerly called *Peloponesus*) in the Southern parts of *Greece*, this *Peninsule* being joyned but by a very little *Isthmus* (called the *Corinthian Isthmus*) to the Continent of *Greece*. 5. The *Golden Chersonese*, from the *Latin Aurea Chersonesus*, a famous *Peninsule* in the *East-Indies*, where now lies the Kingdom of *Malacca* and the South part of that of *Siam*. 6. The *Peninsule* of *Corea*, in the North-East parts of *China*. 7. Those of *Acadia*,
Florida,

Florida, and *Tucatan*, in the *Northern America*; the first lying *Southward* of *St. Laurence's Gulf*; the second in *Florida*, *North* of the *Island Cuba*; and the third being part of *Mexico*, or *New Spain*.

Now, among the *Isthmus's* that joyn these *Peninsules* to their several *Continents*, there are three of special note, *viz.* the *Isthmus* of *Sues*, the *Corinthian Isthmus*, and that of *Panama*.

And it is observable, first, as to the *Corinthian Isthmus*, that there was a *Design* of old to cut it through (being but six miles in breadth) and so make a perfect *Island* of *Morea*. This was attempted (but in vain) first by *Demetrius King* of *Macedon*, then by *Julius Cæsar*, afterwards by *Caius Caligula*, and most of all by the *Emperour Nero*. Who, to hearten his *Soldiers*, took himself a *Spade* in hand, and began the *Work*. But at last they being frightened with the *Blood* which abundantly broke forth, with the *Groans* and *Roarings* they continually heard, and with the *Hobgoblins* and *Furies* which were always in their sight (as if *God* had not been pleased with so proud an *Enterprize*) perswaded the *Emperour* to give over this unprofitable *Design*, as had done the former *Princes* on the like *Discouragements*.

As to that of *Panama*, which is twenty *Leagues* in breadth (a small *Ligament* for so great a *Body* as the *Northern* and *Southern America*) there has been also some thoughts of cutting a *Navigable Channel* through that
Isthmus;

Isthmus; whereby those two *Peninsules* should be turned into Islands, and the long Voyages to *China* and the *Molueca's*, might be very much shortned. The Thing it self has been oftentimes moved to the Council of *Spain*. But it was not thought convenient to attempt it.

In *Egypt* *Sesoftris* King of that Countrey attempted to cut a main Channel from the Red Sea to the River *Nilus* fit for Ships of great Burthen, the marks of which proud Attempt are remaining still. His Project was seconded by *Darius* the great *Persian* Monarch, and one of the *Ptolomies*. But they all gave it over for this Reason, lest by letting in the Red Sea they should drown the Country, that Sea being found to be much higher than the *Mediterranean* and the Flats of *Egypt*.

Phil. So perhaps a second Deluge was prevented.

Sophr. I could tell you more of these Projects, which never came to perfection. As that of *Nicanor* King of *Syria*, to have made a Channel from the *Caspian* to the *Euxine* (or Black) Sea, which was a prodigious Project; That of *Lucius Verus*, who intended to joyn the *Rhine* and the *Rhone*; and the Project of *Charles* the Great, to let the *Rhine* into the *Danube*. There is none but great *Lewis*, the now Almighty King of *France*, who by a long and chargeable Channel carry'd through his Dominions has at last joyned the Ocean to the *Mediterranean*.

I should

i should now resume, *Philaetbes*, the thread of our Discourse, but that I am loth to pass by the strange and famous Adventure of *John Oxenham*, an *English* man, in his Passage over the *Isthmus* of *Panama* by Land. An Adventure not to be forgotten, and recorded by *Spanish Writers* with much Admiration. This Man, one of the Followers of Sir *Francis Drake*, being arrived in a small Barque, with seventy of his Companions, a little above *Nombre de Dios* the chiefest Town of all the *Isthmus*, drew his Barque on Land, covered it with Boughs, and marched over the Land with his Company, guided by Negroes, till he came to a River. There he cut down Wood, made him a Pinnace, entred the *South Sea*, and went to the Isle of *Pearls*, where he stay'd some days. During which he intercepted in two *Spanish Ships* (who feared no Enemy on that side) 60000 pound weight of Gold, 200000 pound weight in Bars of Silver, and so returned in safety to the Land.

Phil. The Attempt was bold, the Success strange, and the Booty prodigious. But what became of the Adventurer at last?

Sophr. It happen'd, by the Mutiny of some of his Company, that he never lived to return unto his Ship, nor into his own Country.

Thus having done, *Philaetbes*; with *Isthmus's*, shall I now give you an Account of such *Capes* as are most famous amongst us?

Phil. With all my heart.

F

Sophr.

Sophr. Then, to begin with *Europe*, there is in *Lap-land* the *North Cape*, being the most Northern part of *Europe*, in the 72. Degree of Northern Latitude. In *Galicia*, a Province of *Spain*, the *Cape of Finiserra*, in the 44th Degree of the same Latitude. In *Algarve*, the most Southern Province of *Portugal*, the *Cape of St. Vincent*, in the 37th Degree of the same Latitude. And in the most Southern part of *Greece*, the *Capes of Gallo and Matapan*, in the 35th Degree of the same Latitude.

In *Asia*, *Cape Raz*, the most Eastern part of *Arabia*, in the 22th Degree of Northern Latitude. *Cape Mosandan*, upon the Streights of the *Persian Gulf*, in the 27th Degree of the same Latitude. *Cape Comori*, in the most Southern part of *Malabar* in *India*, and in the 8th Degree of Northern Latitude.

In *Africk*, the *Cape of Bone* upon the *Mediterranean*, South and by West of *Sicily*; and towards the Streights *Cabo de las tres furcas*. Then, upon the *Atlantick Sea*, *Cape Cantin*, in the Kingdom of *Morocco*, and in the 32d. Degree of Northern Latitude. *Cabo bianco*, or the *white Cape*, in the *Negro's Land*, and in the 21th Degree of the same Latitude. *Cape verd*, or the *green Cape*, also in the *Negro's Land*, but in the 15th Degree of Northern Latitude. And *Cabo Formoso*, or the *Fair Cape*, in *Guinea*, and in the 4th Degree of the same Latitude. Then *Cabo Negro*, or the *Black Cape*, upon the Coast of *Cafraria*, and in the 17th Degree of
Southern

Southern Latitude. And in the most *Southern* Parts of *Africk*, the famous *Cape of good Hope*, being in the 35th Degree of *Southern Latitude*. First Discovered Anno 1487. by *Bartholomew de Diez a Portuguese*, whom *John, II.* King of *Portugal* imployed to find out the way to the *East-Indies*. But he went no further, and returned home again, either discouraged by cross Winds, or unruly Seas, or the intractableness of his Mariners, or by all together. *Vasques de Gama* was the Man to whom the Honour of this Enterprize was reserved. Who being imployed in this Service by *Emanuel King of Portugal* in the year 1497. doubled the *Cape*, and called it *Cabo de Buena Esperanza*, or the *Cape of good Hope*, because of the good hope it gave him of finding the desired Way to the Trade of *India*. Wherein he was so successfull, that having found there the Port of *Calicut*, he with infinite Joy and Honour returned to *Lisbon* in the year 1500, and so opened the way to the *East-India* Trade by Sea. Upon the *Eastern Coast* there are two noted Capes, that of *Corrientes*, and the *Cape of Guardafuy*; this last being the most *Eastern* part of *Africk*, 130 Leagues East of the Streights of *Babelmandel*, and in the 12th Degree of the *Northern Latitude*.

In the *Northern America*, near *Hudson's Streights*, you will find *Cape Worsnam*, *Cape Charles*, and *Cape Henry*. In *Virginia*, another *Cape Charles*; and in an Island near the Coast of *Florida*, the *Cape of Canaveral*.

In the *Southern America*, *Cabo de la Vela*, upon the Gulf of *Mexico*; and *Cabo Raz*, or *North Cape*, in *Caribana*. In *Brazil*, the Cape of *St. Augustine*; and further Southward, *Cape Erio*. On the South-side of the mouth of *Rio de la Plata*, *St. Anthony's Cape*; and further Southward, *St. Andrews Cape*. Lastly, the Cape of *Virgins*, upon the Streights of *Magellan*; and the Cape of *Victory*, on the West end of those Streights.

Towards, and upon the Coast of *Greenland*, you may take notice of these Capes, first found out by the *English*. Viz. *Cape Discord*, *Cape Farewell*, *Cape Christian*, *Cape Desolation*, *Cape Comfort*, *Cape Chidley*, *Cape Walsingham*, &c. And so I have done with Capes, a Thing of great use to Mariners. Now I am resolved to divert you with Hills and Mountains.

Phil. You are more like to fright me with the Height and Steepness of them.

Sophr. The highest Hill we know of is *el Pico* aforesaid, a prodigious high Hill of *Tenariffe*, one of the *Canary Islands* West of *Africk*. It has been reckoned by some 15. miles high, by others 40 and more, but with little credit. *Warrenius* allows it to be 2. Leagues (that is six miles) high perpendicularly, and 'tis said that it may be seen 80 Leagues at Sea in a fair clear day. The form of it is *Pyramidal*, in shape agreeing to those Wonders of Art, the *Egyptian Pyramids*. The Top whereof ending in a sharp point, called the *Pike of Tenariffe*, is never without *Snow*.

But

But there are other great Hills, famous not only for their Height, but also for their vast Extent. As in *Europe*, 1. The *Alpes*, that part *Italy* from *France* and *Germany*. 2. The *Pyrenees*, that divide *Spain* from *France*. 3. The *Apennine*, that part *Italy* almost in the very middle. 4. The *Carpathian Hills*, extending from the Borders of *Austria* to the *Black Sea*, and so dividing *Hungary*, *Transylvania*, and *Moldavia*, from *Poland*. 5. Mount *Hæmus*, reaching from the Gulf of *Venice*, as far as the *Black Sea*, and so parting *Greece* from *Servia* and *Bulgaria*. 6. The *Dofrine Hills*, a vast and continual Ridge of Mountains, which divide *Norway* from *Sweden*.

In the other Parts of the World, you have first in *Asia*, *Taurus* (of which *Caucasus* is a part) and *Imaus*, greater than any in *Europe*; That, running a vast way from *West* to *East*, and This from *North* to *South*. In *Africk*, *Atlas*, extending from the *Atlantick Ocean* a prodigious way *Eastward*; besides the *Mountains of the Moon*, in the *South* parts. In the *Northern America*, the *Mountains of New Mexico*, which run also *North* of *Florida*. And in the *Southern America*, the *Andes*, reaching from the *North* parts of *Peru* to the *Streights of Magellan*, above three thousand Miles.

Those are, *Philætes*, the greatest and most noted Mountains in the World. All of them generally of a Rocky Substance, and in most places overspread with Forests. None of

them free from *Snow*, even in the heat of *Summer*. In short, they are all troublesome and very dangerous to travel over, by reason of their steep and tedious Ascents, narrow ways, and craggy Rocks, deep and dreadful Precipices, fierce Whirl-winds, and huge Balls of *Snow* which sometimes tumble down from the top with great noise and violence. And yet (which is Remarkable) amongst some of these dreadful Hills, as the *Alps*, there are Valleys incredibly fruitful and temperate, with Towns and Villages in them. Generally these Hills are Impassable, except in a few Places, which therefore were by the *Romans* called *Portæ*, or (from the *Greek*) *Pylæ*, or *Thermopylæ*. And, as from Lakes, so from these Mountains spring many of the greatest Rivers. Some produce Metals, as Gold, Silver, Iron, &c. and others produce none at all.

Now the lesser sort of Hills are commonly Sandy, Chalky, or Clammy. And some of these, as Mount *Ætna* in *Sicily*, *Vesuvius* in the Kingdom of *Naples*, and *Hecla* in *Iseland* are famous for those dreadful Fires which sometimes do break out of them.

Phil. Pray, what's the cause of those frequent Eruptions of Fire and Vomiting of Flames?

Sophr. The great Abundance of *Sulphureous* Matter contained in the bosom of those Hills, the Wind which gets in at the chinks blowing the Fire, and the Water on the other side adding to the force of it.

Phil.

Phil. Then 'tis to be supposed, that when the Combustible Matter shall be wasted, the Conflagration shall cease.

Sopbr. Sure enough. And therefore in *Tercera* and *St. Michael* (two of the *Azores* Islands) there are now no such Fires to be seen as there has been formerly, but only now and then a Smoak: And 'tis observable, that in the *Ascension* Island and *St. Helena* the Soil is so like Ashes, that it may be credibly supposed there have been formerly some Fires of this kind.

Phil. But do you think, *Sopbroniust*, the Hills are of as old standing as the World?

Sopbr. For my part I am inclined to believe, the greatest Hills were created at first as they are. Not that I think (as some do) that God, having first made the Earth perfectly Round, without any hollownes, or one part higher than another, and then contrived hollow places in the Earth to contain the Waters, the Hills came of that Earth which made room for the Waters. For certainly as many more Mountains as there are in the World could not fill up all those Concavities.

And yet I am apt to think, that some Hills have been raised accidentally; as those Sandy Hills near the Sea in the Low Countreys, wherein are found many shells. For 'tis very probable, those Shells were carried thither with the Sand by some violent Winds, and afterwards compacted together by succeeding Rains, and so hardened in process of time.

Phil. I confess 'tis not unlikely. Now I would fain know, *Sophronius*, whether or no there be Concavity's or hollow places, Windings and Turnings, Precipices, and the like, in the Bowels of the Earth.

Sophr. There's no doubt of it, if you consider the nature of Earth-quakes, and those Rivers that having run a good way under ground come up again.

Phil. What have you now to say as to Forests and Desarts?

Sophr. In *Europe*, the Forest of most note was the *Hercynian* Forest, which over-run not only a great part of *Germany*, but following the course of the *Danube* spread it self over *Hungary* and *Transilvania*, and from thence on the left hand over *Poland* and *Moscovy*. A Wood so formidable to the *Romans*, that when they had gone 60. days Journey through it, they came back, and durst not venture to search the end of it. But in *Germany* the greatest part thereof is long since consumed, and no place there so much overspread with it as *Bohemia*. In *Poland* and *Moscovy* this Forrest is the most visible, and in the last especially. Which is so over-run with it, that, when I was there an Attendant on the Right Honourable the Earl of Carlisle his Majesties Embassador to the Court of *Moscovy*, we travelled 15 hundred miles through that Countrey, and all within that Forrest. Next to which for Fame was the Forrest called *Ardennes* in the Lower
Germany,

Germany. Which in the time of *Cæsar* extended from the *Rhine* one way as far as *Tournay* in *Flanders*, and was in Compass at least 500. miles. An inconsiderable Length, you will say, in comparison to that of *Hercynia*. But now 'tis not above 30. Leagues in length reaching, but from *Tbionville* in *Luxemburg* to *Liege*. And yet not all that Woodland neither, though within the Verge of that Forrest; there being in that Tract of Ground many Villages, and a great deal of Arable Land.

In short, I shall observe to you, that most of our *European* Forrests are of Fruitless Trees, as *Oak*, *Beech*, *Pine*, *Juniper*, *Alder*, and *Maple-tree*, of *Elm*, *Ash*, and *Poplar-tree*, but above all of *Firr*. Though there are some indeed of *Olive*, *Orange*, and *Myrtle-trees*. But in *Asia*, there are whole Forrests of *Cedar*, *Cinamon*, *Nutmeg*, and *Clove-trees*. In *Africk*, of *Limon*, *Orange*, *Palme*, and *Tamarind-trees*. And lastly *America* is famous for its *Cedars*, but particularly for that red and exceeding hard Wood called *Brasil*, from the name of a Country there which has whole Forrests thereof.

As to Defarts, or Wilderesses properly so called, they are either Sandy, Stony, or Moorish. In *Europe* we are little troubled with them. But in *Asia* there's enough of 'em, and especially in that part of *Arabia* which from hence is called *Arabia Deserta*. A Countrey, (say's *Melchior*, who had travelled in it) where are found neither Men nor Beasts, no, not so much

as Birds or Trees, Grass or Pasture ; but only Stony, High, and Craggy Mountains. In short, 'tis a wild Place, and full of vast Desarts, so wast and desolate, that such as travel there must carry their Provisions with them, and guide themselves in their Journey by the course of the Stars. 'Tis true that towards *Euphrates*, and near the Mountains of *Arabia felix*, it has some few Towns, resorted to by Merchants. But this is only in those Parts. *North-West* of *China* there's a notable Desart, a Sandy one, called *Xamo Desertum*, the Desart of *Lop*, or *Xamo*; through some part of which runs *Hoang*, the great River of *China*. As for *Africk*, Desarts are as common there as Forrests in *Europe*. And there is a good Part of it, lying betwixt *Filedulgeria Northward* and the *Negroes Land Southward*, that is but a continual Desart. 'Tis that we call in *Latin* *Lybia Deserta*, or by the name of the Country *Zara*, which signifies a Desart or Wilderness. In *America*, 'tis said there are likewise vast Desarts, but we have as yet no good Account of them.

So, *Philaetbes*, I shall conclude with these Reflections upon the different Nature of Country's, as Parts of the Earth. For, whereas some Country's are Flat, and only set out with some pleasant little Hills here and there ; others are Mountainous, full of huge Hills and dreadful Precipices. Some are Fat and Marshy, when others are Sandy or Stony.

Some Country's are fruitful, irrigated with fair and Navigable Rivers, and in short bless'd with all Necessaries; whilst others are barren, unhappy, and full of Desarts, fit only to bring forth wild and venomous Beasts. Some produce one Thing, some another, according to that of Ovid,

*Nec eadem Tellus parit omnia, Vitibus illa
Convenit, hæc Oleis, hæc bene Farra virent.*

Some Country's enjoy a Temperate Air, as most Country's of Europe; whilst some are e'en Scorched by an extream Heat of the Sun, and others Frozen up almost all the Year round. And here it is that they have almost a continual Day-light for six Months, and as long a time of continual Darknèss; whilst most part of the World enjoys in the space of 24 hours the more convenient and daily Vicissitude of Day and Night, more or less. Again, some Country's (but Islands especially) are extremely subject to Fogs, Winds, Rain, and Change of Weather; whilst Country's remote from the Sea do commonly enjoy a purer Air, a more Serene Sky, and such Weather as is suitable to the Season. Those are commonly Unhealthful, and subject to divers Diseases; These nothing near so much. In fine, some Country's (as in the East) are much subject to Earth-quakes, some (as the Caribby Islands) to Hurricanes and dreadful Tempests, and others (as Sicily and Iseland) to Deluges of Fire.

The

The Fifth Discourse.

Of the Waters.

S*ophr.* In our last Discourse I have given you, *Philaetbes*, such an Account of the visible Earth, as might fill your Expectation. Now I shall make it my business to be as Accurate in the Description of the Waters, which (as I said before) make up together with the Earth the *Terr-Aqueous* Globe.

In order to which I must tell you in the first place, that, as the Earth is chiefly divided into Continents, Islands, and Peninsules, so are the Waters principally divided

into

Seas, Lakes, and Rivers.

By the Sea in general is meant that great Body of Waters which is thought to encompass the Earth on every side, and is properly called by the Name of Ocean. But there are particular Seas, which flow out of the Ocean through a narrow Passage, and stretch themselves a long way through several Country's, therefore called Inland Seas; as the *Mediterranean*, the *Baltick*, and *Red-Sea*, of which more afterwards.

A *Lake* is a considerable Body of Waters, having no visible Intercourse with the Sea, or influx into it ; as the Lake of *Geneva*.

A *River* is a Water-course issuing from some Spring or Lake, and continually running in its proper Channel, till it emptys it self, either into the Sea immediately, or else into a greater River. The Place where it begins is called Spring, Head, or Source ; where it runs into another, Fall, Influx, or Confluence ; and where it loses it self in any Sea, that is properly termed the Mouth of the River.

But next to Seas, Lakes, and Rivers, I must explain unto you these Words.

Viz.

<i>Gulf.</i>	<i>Haven.</i>
<i>Bay.</i>	<i>Pond.</i>
<i>Creek.</i>	<i>Torrent.</i>
	<i>Brook.</i>
<i>Streight.</i>	<i>Spring.</i>

A *Gulf* is properly a part of the Sea that makes a crooked or circling Shore of a large extent ; as the Gulf of *Bengala* in the *East-Indies*, and that of *Mexico* in *America*. A *Bay* is nothing else but a midling sort of Gulf ; Though I confess there are great Gulfs which bear the name of Bay, as (*North of America*) *Baffins*, *Hudsons*, and *Buttons Bay*. A *Creek* is a little Bay. A *Streight* is an Arm, or a narrow Passage

sage of a Sea ; as the Streights of *Magellan*, *Gibraltar*, and the *Hellepont*. A *Haven*, or an *Harbour*, is a safe Place for Ships to ride at Anchor. A *Pond*, or *Pool*, is but a small Body of standing Waters, apt to be dryed up in *Summer*, if not fed with some Spring or other. A *Torrent* is a rapid Water caused by some great Rain or Thaw, and so rushing down the Hills with great swiftness. A *Brook*, or *Rivulet*, is but a little running Stream, of a small extent. And by a *Spring*, or *Fountain*, is meant a little Stream immediately Springing out of the Ground.

Now, to follow the same Method we used in the Description of the Earth, I must give you, *Philatelbes*, a particular Account of the Seas, Lakes, Rivers, &c.

The Ocean, which surrounds the World, may be divided, according to its four Quarters, into *Northern*, *Eastern*, *Southern*, *Western*. The *Northern Ocean* is that which lies *North* of *Europe*, *Asia*, and the *Northern America* ; and so parts them from *Terra Borealis*. But it is also called the Frozen Sea, as being commonly clogged with Ice in Winter-time. The *Eastern* lyes between *Asia* and *America* ; called *Eastern* in respect to *Asia*. But about the *Southern America* it is best known by the name of *Mar del sur*, or *South Sea*, or by the name of *Pacifick*. The *Southern Ocean* ly's *South* of *Asia*, *Africk*, and *America* ; and so parts them from *Terra Australis*. The *Western* lies betwixt *Europe* and *Africk* of one side and *America* on the other side ; called

led *Western*, because it ly's *West* of *Europe* and *Africk*. But towards *America* it is named *Mar del North*, or the *North Sea*.

Now the Ocean has several particular Names, commonly taken from the adjacent Country's. So about *Brittain* it is called the *Brittish Sea*; about *Ireland*, *Irish Sea*; about the lower *Germany*, the *German Sea*, or the *German Ocean*; and about *Spain*, the *Spanish Sea*. Towards the *East-Indies* it is named the *Indian Sea*. On the *West* side of *Africk*, from *Atlas* the great *African* Mountain, it bears the name of *Atlantick Sea*, or *Atlantick Ocean*; and towards *Aethiopia*, it is from hence called *Aethiopic*.

But besides the Ocean, there are some *Inland Seas*, into which the Ocean diffuses it self. As the *Mediterranean*, which runs *Eastward* from the Streights of *Gibraltar* above a thousand Leagues, betwixt *Europe* *Northwards* and *Africk* *Southwards*, as far as the Shore of *Asia*. Therefore 'tis called the *Mediterranean* (that is, the Midland) Sea, from the Latin *Mare Mediterraneum*. And the *Grecians* upon the same account termed it in their Language *τὸ ἐσω θάλασσαν*, that is the *Inland Sea*. By the *Spaniards* it is usually called *Mar di Levante*, because it runs *East* from *Spain*. In the Scriptures it is called the *Great Sea*, as *Numb. 34.* where it is said, *You shall have the great Sea for a Border*. And that in opposition to the *Dead-Sea* and the *Sea of Galilee*, lying on the other side of the Land of *Palestine*, which are properly but *Lakes* of an indifferent compass. But

But, as the *Camelion* is said to apply it self to the colour of the nearest adjacent Body, so this Sea takes its denomination from the nearest Shores. And accordingly the *Romans* of old gave it these several Names; as *Mare Hispanicum* or *Ibericum*, *Balearicum*, *Galicum*, *Liguricum*, *Tuscanum* or *Tyrrhenum*, *Liburnicum*, *Corficum*, *Sardinium*, *Siculum*, *Ausonium*, *Ionium*, *Creticum*, &c.

Phil. Then I was all this while under a great Mistake. For I took them all (for want of better skill) to be so many distinct Seas from the *Mediterranean*, and so could never find them out to fix them in my mind.

Sophr. You see what it is to be left without a Guide in the dark.

Phil. But whereabouts is the *Adriatick* Sea?

Sophr. The *Adriatick* is that which is called now a days from *Venice* the *Gulf of Venice*, a Sea (or Gulf) which runs up a great way North-west-ward, betwixt *Italy* of one side, part of *Greece* and *Sclavonia* on the other side.

'Tis properly but a Part (or Limb) of the *Mediterranean*, which makes an Excursion that way. And of this *Mare Illyricum* and *Dalmaticum* were but Parts.

Phil. What Sea is that which is called the *Aegean* Sea?

Sophr. The same that is now termed the *Archipelago*, being likewise but an Excursion of the *Mediterranean* to the Northward. A Sea remarkable for its Swarm of Islands, and for parting

(so

(so far as it runs) *Europe* from *Asia*. About the Island *Myrtos*, it was called *Myrtoum*; about *Icaria*, *Icatium*; and so from *Carpathus*, it took the name of *Carpathium*.

Phil. Whereabouts is the *Propontis*?

Sophr. The *Propontis*, now called the *Sea of Marmora*, is a Sea that ly's betwixt the *Archipelago* Southward, and the *Black Sea* Northward; being parted from that by the Streights called *Hellespont*, or the Streights of *Gallipoly*; and from this, by the *Thracian Bosphorus*, or the Streights of *Constantinople*. This Sea continues the Separation of *Europe* from *Asia*.

And so doth the *Black Sea*, otherwise called *Pont Euxin*, or the *Euxine Sea*. A huge Sea, that spreads it self a great way to the Eastward.

Phil. Doth not the *Palus Mæotis* lie hereabouts?

Sophr. Right North from the *Black Sea*, there being but the *Cimmerian Bosphorus*, or the Streight of *Cassa*, between. A Sea much lesser than the *Euxine*, but bigger than the *Propontis*. And therefore the Name of *Palus Mæotis*, or *Mæotick Fens*, is a Name much below the greatness of it. It is now called otherwise the Sea of *Zabache*, from a Fish of that name caught here at some times of the Year. *Pliny* calls it the Mother of the Sea, as if the *Mediterranean* had its Original from hence, and not from the Ocean. The same is also a Boundary betwixt *Europe* and *Asia*.

But in the North of *Europe*, and altogether within the Bounds of it, there is also an Inland

Sea, commonly called the *Baltick*, and by the *Dutch* *Ooft Zee*, which washes on the *North-side* the Shore of *Sweden*, and on the *South-side* part of *Denmark*, *Germany*, and *Poland*. The same begins at the Streights called the *Sund*, and ends in two considerable Gulfs, the one called the Gulf of *Botnia*, and the other the Gulf of *Finland*; from two Provinces of that Name about which they lye, both under the Crown of *Sweden*. The first of those Gulfs, being the greater of the two, runs *Northwards*, and the other *Eastwards*. Further *Northward*, betwixt *Lapland* and *Moscow*, you will find the *White Sea*, a pretty large Arm of the *Northern Ocean*, which runs from *North* to *South*.

Betwixt *Asia* and *Africk* is the *Red Sea*, otherwise called the *Sea of Mecca*, or the Gulf of *Arabia*. This begins at the Streights of *Babelmandel*, from whence it runs *Northward* as far as the *Isthmus of Sues*, above 400 Leagues, but the breadth of it is not proportionable. This is the Sea so famous for the miraculous Passage of the Children of *Israel*, and the drowning *Pharaoh* King of *Egypt*.

Betwixt *Arabia felix* and *Persia* ly's an Inland Sea commonly called the *Persian Gulf*, or the Gulf of *Persia*, or else the Gulf of *Balsora*, or the Gulf of *Elcatif*, from two Towns of the greatest note upon the Sea, that lying just upon the fall of *Euphrates* into it *Northward*, and this 90. Leagues *South* of that in *Arabia felix*.

This

This Sea is a pretty large Arm of the *Southern* Ocean, which breaks in at the Streights of *Magadan*, whilst the River *Euphrates* falls in at the other end. The continual clashing of which two great Waters makes this a turbulent and unruly Sea.

In the *Northern America* you will find as large a Sea as that by the name of *Hudson's Bay*, and the way to it through *Hudson's Streights*. From whence it runs full *South*, betwixt *Estotiland* *Eastward* and *New South-wales Westward*.

West from this Sea you will find *Buttons Bay*. And, about *Terra Borealis*, the Sea called *Baffin's Bay*.

Thus, *Philaetbes*, you have a brief and general Account of the Seas. What remains is to give you an Account of their respective Gulfs and Streights.

The chiefest Gulfs of the Ocean, I mean such as do only make a circling Shore, are (in *Europe*) the little (but famous) Gulf in *Holland* called the *Zuyder Zee*, or *South Sea*, upon which *Amsterdam* is Seated; about *France*, the *Aquitanic Ocean*, so called from *Aquitain*, of which the Province of *Guienne* is a part; and about *Spain*, the Gulf of *Cadix*. In *Asia* there is the Gulf of *Ormuz*, *South* of *Persia*; then the great Gulf of *Bengala*, in the *Indies*; the Gulf of *Sian*, further *Eastward*; the Gulf of *Tunquin*, or *Cochinchine*, further towards *China*; that of *Nanquin*, in the *North Parts* of *China*; a great Gulf, *North* of *Japon*; and lastly, another

ther large Gulf, on the North of Tartary. In Africk there is a great Gulf, towards Guinea. In America you will find St. Laurences Gulf, and the Gulf of Mexico, this last one of the greatest that are.

And, as the Ocean, so the *Mediterranean* has several remarkable Gulfs. As That of *Valencia* in Spain, the Gulf of *Lyon* in France, and on the Coast of *Italy* the Gulfs of *Genoa*, *Gaeta*, *Naples*, *Salerno*, *Policastro*, *St. Eufemia*, *Squillaci* or *delli Castelli*, and *Taranto*. On the Coast of *Greece*, the Gulfs of *Larta*, *Lepanto*, *Arcadia*, *Coron* or *Calamata*, *Colochina* or *Castel Rampani*.

Those of the Gulf of *Venice* are, on the side of *Italy*, the Gulfs of *Manfredonia* and *Trieste*; and on the other side Those of *Carnero*, *Narenza*, *Drino*, and *Valona*.

Those of the *Archipelago*, anciently so famous in *Greece*, are now known by the Names of *Napoli*, *Engia*, *Negroponte*, *Ziton*, *Armiro*, *Salonichi*, *Aiomama* or *St. Anna*, *Monte Santo*, *Contessa*, and *Caridia*, all upon the Coast of *Greece*.

As to the *Baltick* Sea, besides the great Gulfs of *Bothnia* and *Finland* in which it ends, those of most note are the Gulfs of *Lubeck*, *Dantzick*, and *Riga*. And so I proceed to Streights.

From what has been said before it doth appear that there are three sorts of Streights. Some that afford a Passage out of one part of the Ocean into another, some out of the Ocean into

into an Inland Sea, and others out of one Inland Sea into another.

Phil. Pray, let us have them all together.

Sophr. As to Those that make way from one part of the Ocean into another, there is none of note either in *Europe* or *Africk*; Unless we should reckon in *Europe* the Channel for one, and the *Irish Sea* for another. In *Asia* there are many; as the *Streights of Weygatz*, betwixt *Nova Zemla* in *Terra Borealis* and some North Parts of the *Asian Tartary*; of *Uriex*, near the Land of *Jesso*; of *Zungar*, betwixt *Japon* and *Rupi*, in *Tartary*; of *Manille*, South of a great Island of that name, the chief of the *Philippine*; of *Macassar*, South of *Celebes*, another great Island in the *Indian Sea*; of *Palambua*, East of the great Island called *Java*; of *Bantam*, betwixt *Java* and *Sumatra*; of *Malacca*, betwixt *Malacca* in the *Golden Chersonese* and the Island *Sumatra*; and lastly of *Chilao*, betwixt the *Indian Peninsule* on this side *Ganges* and the Island called *Ceylon*. In *America* there's the *Streights of Magellan*, betwixt the *Southern America* and *del Fuego*. To which we may add *Mare Vermejo*, or the *Vermilion Sea*, betwixt *New Mexico* an Island of *California*; which (though never so long) is properly but a *Streight* of this nature.

Those that make way from the Ocean into Inland Seas are, in *Europe*, the *Sund*, which gives an entrance into the *Baltick*; and, betwixt *Europe* and *Africk*, the famous *Streights of Gibraltar* (otherwise called only the *Streights*)

which is an Inlet into the *Mediterranean*. In *Asia* there is the *Streights of Babelmandel*, which afford a Passage into the *Red Sea*; and of *Mos-sandan*, into the *Persian Gulf*: North of *America* you will find the *Streights of Davis*, that lead into *Baffin's Bay*; and *That of Hudson*, which brings one into *Hudson's Bay*.

Lastly, there are three *Streights* that afford a Passage out of one Inland Sea into another. *Viz.* the *Hellepont*, now called the *Streights of Gallipoli*, and by the French *les Dardanelles*, or *le Bras S. George*, betwixt the *Archipelago* and the *Propontis* or Sea of *Marmora*. Then the *Thracian Bosphorus*, or the *Streights of Constantinople*, betwixt the said *Propontis* and the *Euxine* (or *Black*) Sea. Thirdly, *Bosphorus Cimmerius*, now the *Streights of Caffa*, betwixt that Sea and *Palus Maotis*.

Phil. Is not the *Hellepont* that little Channel about a mile broad, over which the *Persian King Xerxes*, intending to Invade all *Greece*, made a Bridge of Ships, and so wafted over his prodigious Army of above two Millions of Men?

Sophr. The very same. But a Sudden Tempest being risen, whereby this Prodigious Bridge was dangerously battered, *Xerxes* was so incensed against this Sea, that he caused it to be beaten with 300. Stripes, and cast a pair of Fetters into it, to make it know to whom it was Subject. Yet at last his Fleet was so broken both by the Valour of the *Greeks* and the
Fury

Fury of the Sea, that he was fain to fly away over this *Helleſpont*, and to make uſe of a poor Fiſher-boat.

Phil. So the proud King was fain to ſtoop at laſt, and run away with ſhame. A very fit Reward for ſo extravagant a Pride.

Sophr. Thus having taken a Survey of the Seas, Gulfs, and Streights, now we ſhall make (if you think fit) ſome Uſeful Reflections upon the Sea, and examine its Height, Depth, Colour, Taſt, and ſeveral Motions.

Phil. Do you believe, *Sophronius*, the Sea is higher than the Land, or no?

Sophr. There are many that do, and who conclude it therefore a Miracle that the Land is not overflown. For my part, I do allow of a Globosity in the Sea, but not ſuch as may indanger the Land, except where the Ground by the Sea-side is lower than ordinary. And in ſuch a caſe the Inhabitants truly don't rely upon Miracles, but are fain to raiſe Banks in order to prevent an Invaſion of the Sea, which never fails to incroach upon the Land when there is any way for it. But the very Courſe of the Rivers down to the Sea does manifeſtly prove the Sea to be no higher than the Land, but rather lower. In ſhort, we muſt conclude, that, if the Sea were higher than the Rivers, that would certainly come down into their Channels, and drown not only the Land, but

the Rivers. So natural it is for Water, where there is the least descent, to move that way, one part following still another without intermission.

Phil. I am very well satisfied as to this Point, Let us now proceed, if you please, to the Depth of the Sea.

Sophr. Its Depth is very unequal. For, as the Land has Hills both great and small, Valleys, and Precipices; so there are in the Sea, Shelves, Rocks, Whirl-pools, and Places not to be fadomed. To be short, the further from Land is the Sea, the deeper it is commonly; and in some places it has been found no less than five or six miles deep.

As for the Colour of the Sea, it appears generally to be of a Sky-colour. But *Northward* it looks darkish; in the *Torrid Zone*, *Brownish*; and in some other Places, *Whitish*, and *Yellowish*.

Phil. I wonder, *Sophronius*, you should forget the *Red* Colour amongst all the rest. Or else how comes the *Red Sea* to be so called?

Sophr. Not from the *Redness* of the Waters, nor from that of the Sands, as some conceiv'd; the Sea and Sands being found by latter Observation to be coloured here as in other places. But you must know this Sea was originally called *the Sea of Edom*, because it took beginning on the Coasts of that Countrey. Now
Edom

Edom in *Hebrew* signifies *Red*, as appears *Gen.* 25. 30. A Nick-name first given to *Eſau*, and from him afterwards to Mount *Seir* or the Land of *Edom*, *Gen.* 36. 31. and then to the Neighbouring Sea. Which by the *Greeks* was rendred *Erythræum*, and by the *Latines* *Rubrum*. Whence the Name of the *Red* Sea became known to all, but the Reason of the Name to few.

So the *White* Sea in the Northern Parts of *Europe* is probably ſo called, becauſe it waſhes the Shore of *White* *Ruſſia* or *Moscovy*. For I gueſs it muſt be from hence the *Moscovites* call it *Bella More*, and we accordingly *White* Sea. I am ſure by my own Experience, that it cannot be from any *Whiteness* it has. Neither has the *Black* Sea took that Name from its *Blackness*; but either from the great Miſts that ariſe from thence, or from the frequent Shipwracks that happen there, the Shore being very dangerous by reaſon of its Rocks and Sands. How *Mare Vermejo*, or the *Vermilion* Sea, that runs betwixt the Northern *America* and the *Island of California*, came to be ſo called, I am as yet to ſeek. But, towards *Cabo Verde* in *Africk*, the *Atlantick* Ocean looks ſo green with a kind of herb, that in calm weather one would take it to be Land; and from that herb, which is ſomething like *Water-cresses*, the *Portugueze* call this Sea *Mare di Sar-gaſſo*. In the Year, 1599. the Sea towards the Mouth of *Rio de la Plata* in the Southern *America*

rica appeared as red as Blood to the *Hollanders*, that were upon that Road ; but then it was occasioned by certain red Worms wherewith the Sea was covered, and which they saw swim upon the Water.

Now from the Depth and Colour of the Sea I proceed to its Saltness. For it is generally Salt, but chiefly in the Torrid Zone ; except where great Rivers disimbogue themselves into the Sea by several Mouths. And it is observable, that the Salter the Sea is the heavier it is, and less apt to be frozen.

Lastly, there are several Motions of the Sea ; and first a general Motion from *East to West*. Secondly, the Tide, or the Flux and Reflux, when the Sea flows in for some hours and then goes off again. The Cause of which is *Arcanum Natura*, a Secret of Nature, which puzzles still the ablest *Philosophers*. Now the greatest Tides are upon a Full Moon and New Moon, and likewise in the *Spring* and *Fall*. But in some Places the Flux is greater than in others, and there is some Seas where it is scarce discernable. The *Baltick* Sea has none, and the *Mediterranean* so little, that (except the Gulf of *Venice*) 'tis hardly to be seen. To be short, in most Places where there is a Tide, the Sea flows constantly during 6 hours and 12 minutes, and then ebbs in the same proportion of time. Whereas in the *Garonne*, one of the chief Rivers of *France*, 'tis flowing water during seven hours, and ebbing water but five. And towards *Ze-*

nega,

naga, a branch of the River *Niger* in *Africa*, the Tide flows but four hours, and ebbs as long again.

The Sea has also some proper Currents in some Places. As between the Cape of Good Hope and *Madagascar* the great *African* Island; where the Sea moves *Southwestward* so strongly that it is hard to overcome that Current even with a fair Wind. Whereas from *Madagascar* to the Cape a Ship may come with ease by the favour of that strong Current without the help of any Wind. In the *West Indies* there is also a violent Current, that is the Streights of *Babama*, so called from an Island of that name towards *Florida*. The same it is with those Places where great Rivers fall into the Sea. As betwixt *Loango* and *Congo* in *Africa*, where the great River *Zaire* empty's it self into the Ocean with such a rapidity, that no Ship (as my Author say's) can get above half a League a day forward towards the Shore.

Phil. I long to know the nature of Whirlpools.

Sophr. This is another Motion of the Sea, proper to some particular Places. As that of the *Aegean* Sea in the famous *Euripus* of old, betwixt *Eubæa* (an Island now known by the name of *Negropont*) and *Achaia* in *Greece*; Reported to ebb and flow seven times in one day. The Reason of which when *Aristotle* could not find, it is said (but hardly believed) that he threw himself into the Sea, with these words,

Quia

Quia ego non Capio te, tu Capies me. Sicily has been also most famous for her *Charybdis*, a Gulf or Whirlpool, of which and *Scylla* opposite to it in *Italy*, many fabulous Things are reported by the ancient Poets. Wherefore *Flo- rus* the Historian calls the Fare of *Messina*, *Fabulosis infame Monstris Fretum*. However it is said of this *Charybdis*, that it attracts and devours all Vessels that come too nigh it, then casts up their Wracks at the Shore of *Tauromenium* now called *Taormina*. And, as to *Scylla*, 'tis but a Rock that stands dangerously on the side of *Italy*, with many little Rocks that shoot out at the foot of it. On which the Water beating very strongly makes that Noise the Poets feigned to be the Barking of Dogs. Now the Passage between these two, being to unskillfull Mariners exceeding Perillous, gave beginning to the Proverb,

Incidit in Scyllam cupiens vitare Charybdim.

Upon the Coast of *Normandy* in *France*, and not far from *Havre de Grace*, there is a kind of *Whirl-pool*, which draws a Ship to it with great Force, but bears her off at last. But the greatest of all the Whirlpools we know of is the *Maelstrom* upon the Coast of *Norway*. This is some four Leagues about, and for the space of six hours it swallows up whatever comes near it, then brings it up again six hours after with a dreadful noise,

Phil.

Phil. What other Motion of the Sea have you to speak of?

Sophr. That which is caused by the Winds, And these (you know) when strong and violent, make the Sea rage and foam, with an hideous noise. A fearful Object to see this Element, which in a Calm looks like an *Azure* Field, become in a Storm a continual Series of tumbling Mountains and Abysses of Water.

Me miserum, quanti Montes volvuntur aquarium!

Jam jam tacturos Sydera summa putes.

Quante diducto subsidunt Equore Valles!

Jam jam tacturos Tartara nigra putes.

Thus *Ovid* bemoans himself in his Book *De Tristibus*, where he makes an excellent Description of a Storm he met with in his way to *Pontus*.

Phil. I understand you, *Sophronius*; and certainly a Man must be void of Sense, that exposes himself voluntarily to the Mercy of that Element.

Sophr. Not so neither, *Philalethes*. The Sea, as well as the Land, was made for the service of Man, and from it we reap many great Advantages. By the Sea we have the opportunity of an Intercourse with the remotest Country's. And, if all men had been of your Temper, how should so many fair Islands have been peopled that are now flourishing? In fine, if

no Body had had Courage enough to venture upon the Sea, how should we be acquainted with the Wonders of it?

Phil. For my part, I confess I am not cut out for the Sea. I love to go upon sure Ground, and I am for that Element which is most proper for Mankind. In short, I like the Proverb, *Praise the Sea, but keep on Land.*

Sophr. There is nothing in the World so formidable, but one may use himself to it. If the Sea be sometimes troublesome and cruel, it is as often pleasant and delightful, and those that are used to it can hardly live from it.

Phil. Well, I wish 'em well to do. *Trabit sua quemque Voluptas*, every one as he likes. I have but a puking Stomack, I cannot indure to be tossed. And, when all is done, those that go to Sea are in continual Danger of Fire, Water, and Pirats. If one be Sea-sick, what Agony? and what help is there for it? Who can expect a Relief in such a Case, either from those which are in the same condition, or from them who being in health do but make sport with the Sick? What Cordial (think ye) is the smell of Pitch and Tar? What Lodging, a Hammock hung up in the Air, or a close and fusty Cabbin? It makes me dry to think of their Salt Vittles, and my Teeth (as strong as they are) tremble with the very Thoughts of cracking a Stone-hard Bisket, when I might have a new Roll at home. And, to digest those hard Vittles, what Place is there

to walk in? A Deck so tossed to and fro, that every step one runs the hazard of a fall, and of a boisterous rude Sea about ones ears into the Bargain.

Sophr. What a fine Speech you made now, *Philaltes*! I see you can make the worst of any Thing. But I am sorry to see you so unmanly, and all your Rhetorick serves only to set out your Faint-heartedness. I wonder how you dare venture to go along the Streets, for the Tiles may chance to tumble upon your head; and how can you with a safe conscience walk the length of your Room, when who knows but that you may shake the Foundations of the House? I see you are in a Fright, and therefore let us leave the Sea, to take a view of the chief Lakes and Rivers. But you must know before-hand, *Philaltes*, that some of them are like so many Seas.

Phil. 'Tis no matter. Their Name is not so formidable.

Sophr. What think you then of the *Caspian Sea* in *Asia*, which in truth is but a Lake, but bears the name of Sea by reason of its vast Compass, being no less than 260 Leagues long, and at least an 100 broad?

Phil. This is a fine Lake indeed.

Sophr. The Greatest we know of. Next to which there is another (according to *Sansons* Maps) about half the bigness of that, called by the name *Caramia*, which he places almost
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in the heart of the *Asian Tartary*. In *Africk* you will find the great *Lakes of Zaire and Zaf-lan*. In the *Northern America*, the *Karegnondi*, and other *Lakes* adjoyning to it, the length of which is not yet fully discovered. And in the *Southern America*, the great *Lake of Parime*, through the *South* part of which runs the *Equinoctial*. This is at least 120 Leagues in length, and 50 where broadest.

Our *Europe* also is stocked with a great many fine *Lakes*. As in *Moscovy* the *Ladoga*, and the *Onega*; and in *Sweden*, the *Wener*. And about the bigness of these are the *Beruan*, in the *Asian Tartary*; *Chiamay*, in the *East Indies*; the *Lakes of Niger, Borno, and Guarda*, in *Africk*; *Ontorio, Eric*, and the *Lake of Nicaragua*, in the *Northern America*; *Lago de los Xarayes, Cassipa*, and *Titicaca*, in the *Southern America*.

I pass by the *Lakes of Constance and Geneva*, of *Ilmen* in *Moscovy*, the *Dead Sea* in *Palestine*, and a great many other of good note in all Parts of the World. Which, though they be lookt upon as great *Lakes*, if compared to those of the lesser sort, yet are much inferiour to the fore said in bigness.

And, as *Lakes* differ in Bigness, so they do in Figure. For some are Round, some Long, and others Oval.

Phil. Is their Water sweet, or not?

Sophr. It is sweet for the most part. But there are some indeed whose Water is Salt; as the *Caspian Sea* aforesaid, and the *Dead Sea* in *Palestine*.

Palestine. And this must be either by some secret Intercourse they have with the Sea, or else by some Salt Springs whereby these Lakes are fed.

One Thing, *Philaetbes*, is remarkable about the Lake *Leman* (otherwise called the Lake of *Geneva*) which is about 16 Leagues in length, and 4 broad where it is broadest; That, whereas both Lakes and Rivers do generally decrease in *Summer*-time, this Lake swells most in the heat of that Season. And the chief reason they give for't is the Thawing of the Snow, which comes down into it from several parts of the *Alps*.

Phil. But how came the Dead Sea in *Palestine* by that name?

Sophr. 'Tis thought it came to be called Sea by reason of its Length and Saltness, being about 70. miles long and 16. broad, and furnishing with Salt the whole Country. But it is called the *Dead Sea*, in *Latin Mare Mortuum*, either because it has no visible Efflux, or because no living Creature is nourished in it, by reason of the bituminous savour it sendeth forth, from whence it has been called *Asphaltis* and *Asphaltites*. Near this Lake it was that stood once the infamous City's of *Sodom* and *Gomorrab*, before they were consumed with Fire and Brimstone.

Now you must know, that many Rivers spring from Lakes, and that Lakes are fed with Rivers. So that there is a great and per-

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petual

petual Intercourse betwixt Lakes and Rivers.

Phil. I am now pretty well acquainted with Lakes, and I would gladly know what you have to say about the Rivers.

Sophr. The Principal Rivers of Europe are, in Spain, the Douro, Tajo, Guadiana, Guadalquivir, and Ebro; in France la Loire, la Seine, le Rhone, la Garonne; in Italy, the Po; in Germany, the Danube, the Rhine, the Elb, the Oder, and the Wesel; in Poland, the Nieper, and the Duna; in Moscow, Volga, Tanais, Duina.

In Asia there is the Euphrates, in the Turks Dominions; Indus, Ganges, and Menan, in the East-Indies; Kiang, and Hoang, in China; Ghammas according to Sanson, Oby, and the Volga aforesaid, in Tartary. In Africk you will find Nilus, Nubia, Niger, Zaire, Zambeze, Zambeze, and Rio de Spiritu Santo, or the Holy-Ghost River.

In the Northern America, the Canada, or St. Laurences Rives, Chucagua, and Rio del Norte or the North River. And in the Southern, the Orenoque, the Amazone, Rio de la Plata, Rio Parana, and Rio Desaguadero. Amongst which the Amazone is a most prodigious River, and the greatest of the Known World.

Now there is this common amongst Rivers, I mean their Windings and Turnings, whereby the Land is most conveniently watered and irrigated. And the great Rivers, which are only to be found in Continents, swell into their

bigness

bigness by the continual Influx of lesser Rivers that empty themselves into them as they run down their Channels towards the Sea, the general Rendezvous of all Rivers. From whence it comes to pass most commonly, that the further a River runs from its Spring, the larger it grows still.

Again, as some Rivers are remarkable for their Length and Breadth, so there are some of a notable Swiftnes; as the *Rhone*, the *Rhine*, and *Danube* in *Europe*; the *Euphrates*, and *Tigris* in *Asia*; the *Zaire*, in *Africk*; the *Saguenay*, a River of New France in the Northern *America*; and the *Amazone*, in the Southern. Amongst which the *Saguenay*, though but a mean River, is reported to be of so strong a Current, that it suffers not the Sea to flow up its Channel; so deep, that in many places it attains to a 100. fathoms. And, which is observable, the same is narrower at the Influx of it into the great *Canada* than it is at the very head. A Thing quite contrary to the general Rule.

Some Rivers run under Ground more or less in the midst of their Course, and at last come up again as new Rivers. Such are the *Guadiana* and the *Rhone* in *Europe*, *Tigris* in *Asia*, *Niger* and *Nubia* in *Africk*.

Some spread themselves into the form of a Lake, as the *Tanaïs* and *Oby*. And others cross a Lake with so swift a course, that they preserve themselves distinct from the Waters of it; as the *Rhone* aforesaid, which coming down

the *Alpes* falls into the Lake *Leman*, and having run through the whole length of it from East to West comes out at *Geneva*.

Some Rivers have great *Cataracts* or Falls, as the *Rhine* betwixt *Bilefeld* and *Shaffausen*, the *Rhone* betwixt *Geneva* and *Lyon*, and *la Somme* betwixt *Amiens* and *Abbeville*. So 'tis said of the River *Nilus* in *Africk*, that in two several places it falls amongst Rocks with so terrible a noise that the Neighbouring People grow deaf with it.

Phil. Pray, let us hear something of their Fall into the Sea.

Sophr. Many of the greatest Rivers fall in through several Mouths, as the *Danube* and *Nilus*, which have no less than seven each of them. And *Olearius*, in his Travels through *Tartary* to *Persia*, tells us of 70. Mouths through which the River *Volga* (that I have been upon several times) disburdeneth it self, after a winding Course of a thousand leagues into the *Caspian* Sea.

But there are some Rivers, and commonly small ones, that neither fall into other Rivers nor yet into the Sea; but either lose themselves in the Ground, or turn into a Lake.

Phil. Are all Rivers of the same Colour as ours are?

Sophr. They are generally so. But yet there be some of a blackish colour, some whitish, and others reddish. Of this last sort was the *Adonis* a River of *Phanicia* in *Syria*, which
rises

rises out of Mount *Labanus*, and falls into the Sea 6. miles *South* of *Barut*. This River in Summer-time used to contract a kind of Redness, occasioned by the Winds, which then blowing most vehemently did thereby carry down the Stream a great quantity of *minium* or red Earth from the sides of the Hills wherewith the Water was discoloured.

Phil. Is not this the River which was reported (as *Lucian* has it) to stream blood, when the obsequies of *Adonis* the Darling of *Venus* were yearly celebrated?

Sophr. The very same. Thus a natural Accident was made use of to give the better colour to the Superstition, as if *Adonis's* Wounds did bleed every year.

Phil. Now, as to the Taste of River-Water, are all Rivers sweet as ours are.

Sophr. 'Tis to be observed first, that all Rivers subject to the Tide have a Taste of the Sea-water, especially near their Fall into the Sea; and, so far as the Tide goes, they have a brackish kind of Taste. But there are other Rivers, that have a brackish and mineral Taste upon another Account, that is from such Minerals as they meet in their Course.

Phil. You know that Rivers are apt to overflow after a great Rain or Thaw, as it frequently happens either at the beginning or at the latter end of Winter. But I have heard of a more general and constant Overflowing of some great Rivers beyond Sea, which I much admire at.

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Sopbr. 'Tis this overflowing upon which depends the Want or Plenty of those Countrys. And the River *Nilus*, amongst others, is as famous for that as it is for its *Crocodiles*. In *May*, says *Thevenot*, it begins to flow, and so increases every day some Inches till the latter end of *September*, or the beginning of *October*. At which time it begins to fall, and is as long ebbing as flowing. In the Year 1658. it increased (according to the same Author who was then in the great *Caire*) to the height of almost 22 *Pics*, each *Pic* at 24 Inches. And then the River began to decrease the 23d. of *September*.

Phil. What becomes in the mean time of the Inhabitants and their Cattle during this great Land-Flood? For *Egypt* at that time must needs look like a Sea.

Sopbr. They retire upon Hills, and there abide till the decrease of the Waters, holding still a Commerce by the Intercourse of Boats.

Now, as it happens sometimes that we have some Years too wet and others too dry; so, if *Nilus* overflows too much or too little, *Egypt* do's suffer for't. Unless it rise to 16 *Pics*, 'tis a bad Year; and when it do's rise to 24. 'tis as bad. But, if it chance at any time not to overflow at all, 'tis worst of all. For then it does not only presage a Famine in *Egypt*, but (as some will have it) prognosticates a Change in the State. And accordingly 'tis said that in
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the tenth and eleventh Years of *Cleopatra*, a little before her Fall with her Sweet-heart *Antonius*, the River increased not at all.

Phil. This is indeed very Remarkable. But, when the Water of *Nilus* is withdrawn to its natural Channel, I suppose the Ground is very Slimy, having lain so long under Water.

Sophr. So very Slimy, that whereas we are fain to dung our Grounds, the *Egyptians* throw Sand upon theirs before they Sow or Plant any thing. And of this Slime is ingendred many living Creatures, and (as some say) such innumerable heaps of Frogs, that if the Country were not furnished as it is with a proportionable number of *Storks*, by whom they are greedily devoured, the Plague of Frogs would come a second time upon the Inhabitants.

Phil. Is it true that it never rains in *Egypt*?

Sophr. Tis a Vulgar Error, strongly confuted by *Monsieur Thevenot*; Who affirms that it rains much in *Alexandria* and *Rosetta*, but not indeed so much in the City of *Caire*. However, he says, that he has seen it rain there two days together very hard, and with great Thunder-claps in the Month of *December*.

The Sixth Discourse.

Of the National Parts of the Earth.

S*Opbr.* Besides the Natural Division of the World into Earth and Waters, there is a National Division of it, which is to be the Subject of our present Discourse.

And, to make it clear to ye, you must know first, the World is divided into two Principal Parts, the Known and the Unknown World. The Unknown World, or that Part of the World which is yet Unknown to us, lies about the Poles, but the greater Part towards the *Southern* Pole. That Part which lies towards the *North* Pole is called in *Latin* *Terra Borealis*, or *Terra Polaris Arctica*; and the other Part that lies towards the *South* Pole, *Terra Australis*, or *Terra Polaris Antarctica*.

The Known World is usually divided into four Parts, *Europe*, *Asia*, *Africk* and *America*. But it is a most unequal Division, and I think it more rational to divide it thus. *Viz.* the Known World, first into two Parts, the Old and the New World; then the Old World into three, *Europe*, *Asia*, and *Africa*; and the New into two, the *Northern* and *Southern America*. For, as the Old World do's visibly consist of three distinct

distinct Peninsules, so is the New as clearly divided by Nature into two other Peninsules, holding proportion with the former. Thus the Known World shall be divided (if you will) into five Parts.

Viz.

<i>EUROPE;</i>	The Northern	}	<i>AMERICA.</i>
<i>ASIA,</i>	and		
<i>AFRICA,</i>	The Southern		

Phil. How comes that Distinction of Old and New World, when they are both of a Date?

Sophr. That Distinction came into use since *America* was first discovered. For then it begun to be called, and that most aptly, the New World; New, for the late Discovery; and World, for the vast Greatness of it.

Phil. Which of these five Parts is the biggest?

Sophr. *Asia* is the biggest, *Europe* the least. For this is little above half the compass of *Asia*. And yet from *East* to *West*, as from the Cape of *Finisterra* in *Spain* to *Constantinople* in *Greece*, 'tis no less than 950. Leagues; and from *North* to *South*, as from the *North* Cape in *Lapland* to Cape *Matapan* in the most *Southern* part of *Greece*, 750.

Phil. Whereabouts doth *Europe* lye in respect to the other Parts?

Sophr.

Sophr. *Europe* is bounded on the *North* with the *Northern Ocean*, which separates it from *Terra Borealis*; *Westward*, with the *Western Ocean*, which parts it from *America*; *Southwards*, with the *Streights of Gibraltar* and the *Mediterranean*, whereby it is divided from *Africk*; *Eastward* it is parted from *Asia* by all those Seas and *Streights* that run up successively *Northward* from the *Mediterranean*. But from *Palus Maeotis* upward, the Bounds are uncertain, and not yet agreed on amongst *Geographers*. The *Ancients*, I know, made the River *Tanais* a Boundary as far as it would go. But they were so little acquainted with these Parts, and with the Course of that winding River, that to follow them here were to follow a blind Guide. For my part I will not presume to prescribe any Bounds. But, if I were to chuse, I would only draw a line from the most *Northern* part of the said *Palus Maeotis North-Eastward* as far as the Gulf of *Petxora*, a little on this side the *Streights of Weygatz*.

I should be loth either to contract *Europe* so much as to confine it within the Bounds of the *White Sea*, as some do; or to overstretch it, as others do, as far as the River *Oby*, whereby they edge into *Europe* a good part of the *Asian Tartary*.

Phil. So you are for a *Medium*.

Sophr. I am so.

Phil. But how comes *Europe* to be so called?

Sophr.

Sophr. Don't you know the old Story, *Europe* from *Europa* the Daughter of *Agenor* King of *Phœnicia*? Which Lady *Europa* *Jupiter* brought to *Creet*, and so she gave the name to *Europe*. A very credible Story, that *Jupiter's* bringing of that Lady from *Phœnicia* to so small a part of *Europe* as the Isle of *Creet* where she came should give denomination to all this Part of the World.

For my part I should rather think the name of *Europe* to be derived from a *Maritime* Province of *Thracia* so called, and that those of *Asia* gave the name of *Europe* to this Part of the World, according to the name of that Province which lay nearest to them. Just so the *Europeans* gave the name of *Asia* to that other Part of the World from one small part of it called *Asia*, which lay next to *Greece*. And in the same manner the *Romans* called *Africk* so, after the name of that particular Province or Part thereof which they brought first under their Obedience.

Phil. What makes us put always *Europe* first, when we speak of the chief Parts of the World? I would fain know how this little Part came to that great Preferment.

Phil. The best Reason I know for it is, that we love to prefer our selves. Because we are born and live in *Europe*, therefore *Europe* must march in the Front. Though *Asia* by right, and that upon such Grounds as you shall see afterwards, should have the Precedency. But I suppose

suppose they will scarce fall out about it. And yet one might say much in the behalf of *Europe*, as it is now improved. *Europe* so generally fruitful, temperate, and populous; so extremely improved in all Arts both Liberal and Mechanical. *Europe* famous besides for having Ruled a long time over *Asia* and *Africk*, during the *Greek* and *Roman* Monarchy's. Famous for its wonderful Discoveries and Conquests (not to say Invasions) of the New World in these latter Ages. To which we may add that great Prerogative we have above the rest of the World, the Christian Faith.

Phil. Now you have done *Europe* a good turn, and 'twere pity but *Europe* should consider it. But which of the Sons of *Noah* first peopled it after the Deluge?

Sophr. Whilst *Shem* peopled *Asia*, *Cham* *Africk*, the Isles of the *Gentiles* (says *Moses*, *Gen.* 10.) were divided amongst the Sons of *Japhet*. Now by these Isles is understood *Europe*, a great part whereof doth indeed consist of Islands and *Demi-Islands*. Nor was the Name and Memory of *Japhet* so much forgotten by the Children which descended of him, but that the *Greeks* who were the first of their *European* Plantations retained it a long time in their *Japetus*, the Son (as they said) of *Cælum* and *Terra*, and Father of the wise *Prometheus*.

Phil. Pray what's the meaning of God's Promise unto *Japhet*, that he would make him dwell in the Tents of *Shem*?

Sophr.

Sophr. The same is to be understood both in a literal and mystical Sense. In the first Sense the Promise was fulfilled, when the Posterity of *Japhet*, both *Greeks* and *Romans*, subdued *Judea* or the Land of *Canaan*, and the Eastern Parts promised to and possessed by the Seed of *Shem*. And in the second Sense, when it pleased God to break down the Partition-Wall, and to Incorporate the *Gentiles* of the House of *Japhet* into the Body of the Church, which for a long time was restrained to the Line of *Shem*.

Phil. Now we shall proceed, if you please, to the Division of the five Parts of the World into their Principal Countrys.

Sophr. As for *Europe*, this is my general Division thereof. *Viz.*

Into

Spain,
France,
Great Brittain and Ireland,
Germany,
Italy,
Turky,

Poland,
Tartary the lesser,
Moscovy, or Russia,
Sweden,
Norway,
Denmark.

In *Spain* you will find the Kingdoms of *Spain* and *Portugal*. In *Great Brittain*, the Kingdoms of *England* and *Scotland*, and the Principality of *Wales*.

In

In *Germany*, besides the Emperors Dominions (consisting chiefly of the Arch-Dukedom of *Austria*, part of *Hungary*, and the Kingdom of *Bohemia*) you will find both the Dukedom and Upper Palatinate of *Bavaria*, *Suaben*, *Switzerland*, *Alsace*, the Lower Palatinate of the *Rhine*, *Franconia*, *Hesse*, the *Low-Country's*, *Westphaly*, *Saxony*, *Brandenburg*, and *Pomeran*.

In *Italy* there are the Kingdom of *Naples*, the Pope's Land, the Dukedom of *Tuscany*, the States of *Genoa* and *Luca*, the Principality of *Piemon*, the Dukedoms of *Milan*, *Mont-ferrat*, *Mantua*, *Parma*, *Modena*, and the State of *Venice*, besides the Islands and Kingdoms of *Sicily* and *Sardinia*.

Turkey in *Europe* comprehends 1. all *Greece*, divided into *Thracia*, *Macedon*, *Albania*, *Epirus*, *Thessaly*, *Achaia*, *Peloponesus*, besides the Islands, amongst which *Creet* (now *Candia*) and *Eubæa* (now *Negroponte*) are the chiefest. 2. *Mæsia*, containing *Servia*, *Bulgaria*, and *Bessarabia*. 3. the South parts of *Podolia* in *Poland*, and *Cassia* in the *Taurick Chersonese*. 4. *Bosnia*, with the greatest part of *Hungary*, *Sclavonia*, *Croatia*, and *Dalmatia*. And lastly, though the Grand-Signior be not fully possessed of *Moldavia*, *Valachia*, and *Transylvania*, yet the respective Princes thereof are Tributary to Him. And so is the *Cham* of *Tartary* the lesser.

As to the Kingdom of *Norway*, it belongs to the Crown of *Denmark*; and the greatest part of *Livonia*, to *Sweden*. The great Dukedom
of

of *Lithuania* is united to the Crown of *Poland*, *Lapland* is divided betwixt the *Czar of Moscow* and the Kings of *Sweden* and *Denmark*; *Saxony*, within the *Alps*, belongs to the Duke of that Name. Adjoyning to which is *Valesia*, and the Country of *Grisons*.

Now most of the Country's aforesaid are subdivided into several Provinces, and some of these into lesser Parts. But I shall forbear at present those Subdivisions, and leave that till another time. My Design is only to give you a general Account of the World, till I have more time to come to Particulars.

Phil. Then let us proceed to *Asia*.

Sophr. *Asia*, the greatest of the five Parts of the World, is a Peninsule almost as big again as *Europe*, and every way incompassed by the Ocean, except on the *West* side. *Northwards* the Ocean parts it, as it doth *Europe*, from *Terra Borealis*; *Eastwards*, from *America*; and *Southwards*, from *Terra Australis*. Then on the *West* 'tis bounded with the Red Sea, which parts it from *Africk*; Next to that, with the narrow *Isthmus* of *Sues*, where *Asia* joyns to *Africk*; afterwards, with the *East* end of the *Mediterranean*; and lastly, with those Seas, and Streights, &c. that part it from *Europe*, for which I refer you thither.

The same, as I hinted before, was first called *Asia* by the *Europeans* from the nearest part to *Greece* called by that name. Which spread it self from that *Lydian Asia* to *Asia* properly

so called whereof that was but a Part, the proper *Asia* to the whole Body of *Anatolia*, and this to the whole Continent. Now this being known by the name of *Asia* occasioned the Distinction of *Asia* the greater and *Asia* the lesser, by which last name *Anatolia* is still called amongst us.

Phil. Now, *Sophronius*, let me know upon what Grounds *Asia* should have (as you think) the Precedency.

Sophr. Not to insist upon the Largeness of its Extent, or the Riches of its Soil, I think *Asia* ought to be had in special honour for these Reasons following. First, for the Creation of Man, who had his first making in this Part of the World. For here stood the Garden of *Eden*, the first place of his Habitation, and from hence all Nations of the World had their first beginning. Secondly, because here flourished the two first great Monarchies of the *Assyrians* and *Persians*; the first signified by the Image with the Golden Head in *Daniel*, and the last by the Arms and Breast of Silver. Thirdly, because it was the Scene of almost all the memorable Actions recorded in the Scriptures. And lastly, because that here our Saviour Christ was born, wrought his Divine Miracles, and accomplished the great Work of our Redemption.

Phil. I am very well satisfied with your Reasons. The next Thing I desire to know is the Division of *Asia*.

Sophr.

Sophr. Asia is chiefly divided

Into

*Turkey in Asia, India,
Arabia, China,
Persia, Tartary,*

Besides the Islands.

Turkey in Asia comprehends 1. *Asia* the less, or *Anatolia*, now called by contraction *Natolia*, which anciently was divided into these Provinces so noted in History. Some Maritime ones, as *Pontus*, *Bithynia*, *Phrygia* the lesser, *Mysia*, *Aolis* and *Ionis*, *Caria* and *Doris*, *Lycia*, *Pamphylia*, *Cilicia*. And these Inland Provinces, *Viz.* *Isauria*, *Armenia* the lesser, *Cappadocia*, *Galatia*, *Paphlagonia*, *Phrygia* the greater, *Lydia*, *Pisidia*, *Lycaonia*. 2. It contains *Armenia* the greater, now called *Turcomania*. 3. *Chaldea*, *Assyria*, and *Mesopotamia*, which three Provinces together did properly and originally constitute the *Assyrian* Empire. 4. *Syria* and *Palestine*; the first containing *Syria propria*, *Cælo-Syria*, *Phœnicia*, *Palmyrenè*; and *Palestine* being otherwise called the Land of *Canaan*, or the Land of *Promise*, *Judæa*, and *Israel*. The Northern part of which, when possessed by the Tribes of *Asser*, *Nephthaim*, *Zabulon*, and *Issachar*, went properly by the name of *Galilee*. 5. part of *Arabia*.

Now *Arabia* is divided into *Petræa* or *Stony*,

I

Deserta

Deserta or *Desart*, and *Felix* or *Happy*, this last of a vast extent.

Persia, a large Continent, was anciently divided into *Persis*, *Susiana*, *Carmania*, *Gedrosia*, *Drangiana*, *Aria*, *Arachosia*, *Paropamisus*, *Parthia*, *Hyrkania*, *Margiana*, and *Bactria*. To *Persia* may be also referred *Media* and *Georgia*. *Media* contained *Atropatia*, and *Georgia* comprehended *Iberia*, *Colchis*, and *Albania*.

India was divided from the River *Ganges* into *India intra Gangem* or *India* on this side *Ganges*, and *India extra Gangem* or *India* beyond *Ganges*. Here is, amongst other Kingdoms, the vast Empire of the great *Mogol*.

China and *Tartary* are also two vast Continents, but this last especially, which altogether takes up above one third part of *Asia*.

As for the chief Islands of *Asia*, you have had an Account of them in the fourth Discourse. So I shall proceed to a general Account of *Africk*.

Phil. I am ready to hear you.

Sophr. *Africk*, a compleat Peninsula, is bounded on the North with the Streights of *Gibraltar* and the *Mediterranean*, which part it from *Europe*; on the South, with the Southern Ocean, which separates it from *Terra Australis*; Eastward, with the Ocean likewise for the most part; then with the *Red-Sea* which parts it from *Asia*, and lastly with the foresaid *Isthmus* of *Sues* where it joyns to *Asia*, and without which *Africk* would be a compleat Island.

It contains in chief

<i>Barbary,</i>	<i>Monomotapa,</i>
<i>Biledulgerid,</i>	<i>Monomugi,</i>
<i>Zara,</i>	<i>Zanguebar,</i>
<i>The Negroes Land,</i>	<i>Abissinia,</i>
<i>Guinea,</i>	<i>Nubia,</i>
<i>Congo,</i>	<i>Egypt.</i>
<i>Cafraria,</i>	

Barbary, which runs as far as *Egypt* along the *Mediterranean*, contains the Kingdom of *Morocco* Westward upon the *Atlantick* Ocean, the Kingdom of *Fesse* partly upon that Ocean, partly upon the Straights and the *Mediterranean*. Then, still going Eastward, you will find the States of *Algier*, *Tunis*, *Tripoli*, and the Kingdom of *Barca*. Now *Mauritania* took up the Western Part of *Barbary*. And, as the Kingdom of *Tunis* was the *Africa propria* of the Ancients, so you will find their *Cyrene* and *Marmarica* in the Kingdom of *Barca*.

Biledulgerid, anciently called *Numidia*, being part of *Lybia Interior*, ly's South of *Barbary*; and runs also from West to East, as far as *Egypt*. *Zara* or *Libya Deserta*, anciently counted likewise as part of *Libya Interior*, ly's South of *Biledulgerid*.

South of that you will find the *Negroes Land*, which runs also a great way from the *Atlantick* Eastward, and is divided into several Kingdoms

doms. And *Southward* is *Guinea*, a Sea Coast Country. The first of note, amongst other Things, for the Negroes that are commonly employed in the New World, to do the *Euro-peans* Drudgery. This, for the Gold that is brought from thence.

Congo, *Cafraria*, *Monomotapa*, and *Monomugi* went all amongst the Ancients under the name of *Ethiopia Inferior*; *Zanguebar* and *Abissinia*, under that of *Ethiopia Superior*.

Congo contains several Kingdoms, which I forbear to mention, because of no great Note. *Cafraria* is a Sea-Coast Country that extends it self from *Angola* (part of *Congo*) as far as the Cape of Good Hope *Southward*, and from thence as far as *Zanguebar Eastward*.

Monomotapa and *Monomugi* are two Inland Country's of *Africk*, lying within the Compass of *Cafraria*. But *Zanguebar* is a Sea-Coast Country towards the *East*.

Abissinia is a vast Empire, divided into several Kingdoms, and whereof the *Western* part is watered by the River *Nilus*. *Nubia* ly's *West* and *North* of *Abissinia*; and the Defart of *Barca*, or *Libya Marmarica*, *North* of *Nubia*.

Egypt, which next to *Barbary* is the most noted and frequented Country of *Africk*, is bounded *Eastward* with the *Isthmus* of *Sues* and the *Red-Sea*, *Westward* with *Barca* and the Defart of that name, *Northward* with the *Mediterranean*, and *Southward* with *Nubia* and *Abissinia*.

Thus

Thus much for the Old World. And now I come to the New, otherwise known by the Name of *America*, or else the *West Indies*.

Phil. I remember you told me before, the New World was called New, for the late Discovery; and World, for the vast Greatness of it. Pray, how long is it since it was first discovered?

Sophr. 'Tis almost two hundred years ago, and the first Discoverer of it was *Christopher Columbus*, an *Italian* born, of *Genoa*. He being a Man of great ability's, and born to undertake great Matters, could not persuade himself, when he considered the Motion of the Sun, but that there was another World to which this Glorious Planet did impart both his Light and Heat, when he went from us. This World he resolved to seek after, and accordingly in the year 1486. he opened his Design to the State of *Genoa*. But, the business being slighted there, he sent his Brother to the Court of *England*. Who unluckily fell in his way hither into the hands of Pirates, and was by them detained a long while. However he got his Liberty at last, and so came over to *England*, where his Proposition was so well relished, that *Columbus* was sent for to take measures with him. But he, not having heard a long time from his Brother, conceived the Offer of his Service to have been neglected, and had already made his Address to the Court of *Spain*.

At that time Reigned King *Henry VII.* here, and Queen *Isabella* in *Spain*. Where *Columbus* at last, with much ado, and after many delays, had three Ships furnished, not so much for Conquest as for Discovery.

Phil. How came he at last to compass his Design?

Sopbr. Being furnished with the Ships afore-said, he ventured upon the main Ocean, steering his Course to the *Westward*. Two whole Months did he float upon this unknown Sea, before he could see any Land. Insomuch that his Men began to Mutiny, and refused at last to go on. He promised them to return again, if they did not see Land in three days. They agreed. And, as Providence would have it, on the third day, they discovered the Island *Guanahani*, in the 24th Degree of Northern Latitude. There having Landed, he took possession of it for the Crown of *Spain*, October 11. Anno 1492. and called it *St. Salvador*, which is *S. Saviour*. Afterwards he discovered and took possession of *Hispaniola*, and with much treasure and applause returned into *Spain*. Preferred for this good Service, first to be Admiral of these *Indies*, and afterwards to a Coat of Arms with this Motto, *For Castille and Leon Columbus has got a New World*, and in conclusion to the Title of *Duke de la Vega*.

The next year he returned thither, discovered the Islands of *Cuba*, *Jamaica*, and *Hispaniola*, and in this last built the Town now called

called *St. Domingo*. In the Year 1497. (the same year that *Vasquez de Gama* found out the Passage by Sea to the *East Indies*, a happy Time for Discovery's) he went another Voyage, in which he discovered amongst other Places *Paria* in the Firm Land. And in the year 1500. he began his fourth and last Voyage, which he performed without adding much to his former Discoveries. At last he died in *Spain*, in the year 1506; and was honourably Interred at *Sevil*.

But, though *Columbus* be dead, yet *Columbus's* Fame shall live to all Posterity's. 'Tis he we are indebted to for the Advantage we have of seeing clearly those Things which either were Unknown, or but blindly guessed at by the Ancients.

Next to *Columbus*, *John Cabot* a *Venetian* (the Father of *Sebastian Cabot*) discovered a great part of this Continent, in behalf of *Henry VII* of *England*. For in the year 1497. he found out all the *North-East* Coasts hereof from *Florida* Southward to *New-found-Land* and *Terra di Laborador* in the North. Then came *Americus Vesputius*, a *Florentine*, imployed therein by *Emanuel King of Portugal*, Anno 1501. on a design of finding out a nearer way to the *Molucca's* than by the Cape of *Good Hope*. And, though he passed not further than the Cape of *St. Augustine* in *Brasil*, yet from him (to the great Injury and Neglect of the first Discoverers) this Continent has got the Name of *America*.

Sic Vos non Vobis fertis Aratra Boves.

Phil. Indeed this is a great piece of Ingratitude. But *Ufus invaluit*, and now it is past cure.

Sophr. I have but this more to tell you upon the Subject of this Discovery, That after *Americus* there came several private Adventurers and Undertakers out of all parts of *Europe* bordering on the Ocean. Amongst whom *Magellan* was the first that compassed the whole World, and found the *South Passage* called from him the Streights of *Magellan*. Wherein he was followed by *Drake* and *Cavendish* of *England*. Thus this New World became a Prey to *Europe*, but to *Spain* especially. Thus the Natives were invaded, and (till the time of *Charles V.*) Millions of them destroyed by the *Spaniards* Cruelty, who, to secure their Usurpation, and satiate their Avarice, laid aside all sense of Religion and Humanity it self, and so made Christianity a Bug-bear to those naked Heathens.

*Auri Sacra Fames, quid non mortalia cogis
Pecora?*

But the Blood of these poor People cry's for Vengeance still. And 'tis observable already how the Monarchy of *Spain*, which was so formidable but in the last Century, has been almost ever since *Charles* the Fifth's time in a declining

clining condition. First overpowred by the *Hollanders*, then by the *English*, and lately by the *French*.

Phil. I love to take notice of great Men. Pray, what was that *Magellan* who first Sailed round about the World?

Sophr. He was a noble *Portuguese*, well skilled in Navigation. Who, upon some Discontents received in the Court of *Emanuel* King of *Portugal*, made offer of his Service to *Charles* the fifth King of *Spain*, and undertook the finding out a shorter cut to the *Molucca's* than had been discovered. Which he effected in the year 1520. by his Discovery of those narrow Seas, from him called the Streights of *Magellan*, whereby he at last entred from the North into the *South-Sea*.

And, to give you a Description of those Streights, I shall tell you in the first place, that they are in the 53. Degree of *Southern* Latitude, about 100. Leagues in length, with high Hills on both sides always covered with Snow. The Passage, as it is tedious and unpleasant, so it is very dangerous. For here the Sea ebbs and flows with a violent swiftness, and the very first fall into it is extremely doubtful and hazardous. And then it is a Place of that Nature, that which way soever a man Steer his Course, (as I told you before, speaking of the Winds) he shall be sure to have the Wind against him. Besides that the Course of the Water, says *John Davis*, is so full of Turnings
and

and Changings, and those so violent, that when a Ship is entred there is no returning. To which add, that the Channel is so very deep (in some places no less than 300. fadoms) that there's no hope of Anchorage.

In short, it was a whole month, (*viz.* from the latter end of *October* to the end of *November*) before *Magellan* could be clear of these Narrow Seas. From whence he sailed at last to the *East-Indies*. But there he was the year following unfortunately slain. And, of five Ships that he set out with, there was but one (by a happy Omen called *Victoria*) that returned to *Spain* in safety. The Commander of that Ship was *Sebastian del Cano*, who after a very long and dangerous Voyage (wherein it was thought he had Sailed at least 14000. Leagues,) had the happiness to bring home the welcome News of his good Success.

But, to return to our *Americans*, they are credibly supposed to descend from the *Tartars* of *Asia*. For, besides that the *West* side of *America* is disjoyned from *Tartary* but by a very small Streight, so that there is thence into these Country's a very quick and ready Passage; 'tis certain the *Americans* are most like the *Tartars* of any, in the whole course of their Life. To which add, that the *West* side of *America* is far more populous than the *East* towards *Europe* or *Africk*; Which argues that those *Western Parts* were first Inhabited, and that from hence the rest was Peopled.

What

What remains now is to give you, *Philalethes*, first the Division of the *Northern America*, and then that of the *Southern*, both of them according to the present State of those two great Peninsules.

The *Northern America* may be fitly divided into these principal Parts ;

Viz.

<i>Mexico</i> , or	<i>Virginia</i>
<i>New Spain</i> ,	<i>Canada</i> , or
<i>New Mexico</i> ,	<i>New France</i> ,
<i>Florida</i> ,	<i>Estotiland</i> .

Mexico, the most *Southern*, the best, and most populous Part of all this Peninsule, has on the *East* the Gulf of *Mexico*, and on the *West* the *South Sea*. The same reaches from the *Isthmus* of *Panama* Southward to *Rio del Norte* in *New Mexico* Northwestward above 400. Leagues, but the breadth of it is not proportionable. It is called *Mexico*, from the chief Province of that name, as this is from the chief City. The whole Kingdom is divided into three great Prefectures, or Governments, called by the Spaniards *Audiencias*; viz. of *Mexico*, of *Guadalajara* or *New Galicia*, and of *Guatemala*, which comprehend several Provinces. And, as the Gulf borrows its name from hence, so the whole Peninsule is sometimes called from it *Mexicana*. This rich Kingdom belongs to-
ly

ly to Spain, since the Conquest of it by Ferdinand Cortez, Anno 1519.

North of this Mexico you will find Nuevo Mexico, or the New Mexico; bounded Eastward with Florida, and Westward with Mare Vermelho, which parts it from California.

Florida ly's full North of the Gulf of Mexico, and Carolina is counted part of it, lying near the Sea, and South of Virginia.

By Virginia, as a general Name, I mean all that Sea-Coast Country, which reaches North-Eastward from Florida as far as the Gulf (or Bay) of S. Laurence. And so it contains chiefly Virginia properly so called, New Sweden, the New Netherlands, New-England, and Acadia.

Canada, or New France, ly's on both sides of the River Canada. And on the West side you will find the Saguenay, a part of New France so called from a River of that name which runs into the Canada.

Estotiland comprehends those Regions that lie most towards the North and East. Bounded Eastward with the main Ocean; Northwards, with Hudsons Streights; Westward, with Hudson's Bay; and on the South, with Canada or New France. There is nothing but the Sea-Coast of it discovered. The same is also called Terra Corterealis, or Corterealis Ora, from Corterealis, a Portuguese, who in the year 1500 left his name unto it. It has likewise got the name of Terra de Labrador; and now the French call it Nouvelle Bretagne, that is, New Brittany, from

a *French* Province of that name.

One Thing is Observable concerning this Peninsula, that most of the *Western* Parts (as being furthest from *Europe*) are still undiscovered. But *Northwards* you will find some Parts of it, bearing the Name of *New North-wales*, *New South-Wales*, and *West* of these *New Denmark*.

The *Southern America* I divide into these chief Parts.

Viz.

<i>Terra firma,</i>	<i>Chili,</i>
<i>Brasil,</i>	<i>Peru,</i>
<i>Paraguay,</i>	<i>Amazonia.</i>
<i>Magellanica,</i>	

Terra Firma, in Spanish *Tierra Firme*, comprehends those Regions which lie most towards the North. As *Terra firma* properly and specially so called, the Governments (or Country's) of *Popayan*, *Cartagena*, *S. Martha*, *Rio de la Hacha*, and *Venezuela*, the new Realm of *Granada*, *Paria*, *Caribana*, and *Guiana*. All which belong for the most part to *Spain*.

Brasil, which takes up the most *Eastern* Parts, and does chiefly belong to *Portugal*, is divided into several *Capitanias* (as the *Portuguese* call them) or *Prefectures*, the Principal of which is *Capitania de Siara*. The Rest are of a less compass, and bear for the most part the names of their chief places, or Principal Rivers. As

Capitania

Capitania de Para, de Maragnan, de Rio grande, Parayba, Tamaraca, Pernambuco, Bahia, Ilheus, Porto Seguro, Spiritu Santo, Rio Janeiro, and S. Vincente. But all this is only by the Seaside, the Inland Parts being left (I suppose) for our Posterity to plant.

Paraguay ly's South and West of *Brasil*, and doth chiefly belong to the *Spaniards*. It is called *Paraguay*, from the great River of that name, otherwise named *Rio de la Plata*, which runs through the midst of it. The same is at present divided into *Paraguay* properly so called, *Guayra*, *Parana*, *Uruguay*, the Province of *Rio de la Plata*, *Chaco*, and *Tucuman*.

Magellanica ly's South of *Paraguay*, and reaches to the very Streights of *Magellan*, where this Peninsule (like *Africk*) draws towards a point not unlike that of a *Pyramis*. This wild Country has the Prospect, not only of the Streights aforesaid Southwards, but also of the North-Sea Eastward, and part of it of the South Sea Westward.

Chili is a Sea-Coast Country, upon the South-Sea, West of *Magellanica*. Most part of which, and that towards the North, is subject to the Crown of *Spain*.

Peru, a Country famous for its Gold and Silver Mines, lies Northward of *Chili*, East of the South (or *Pacifick*) Sea ; and is parted from North to South, almost in the midst, by the huge Mountains called *Andes*. The Country is about 600. Leagues in length from North

to

to *South*, but the breadth from *East* to *West* is not proportionable. From hence it is that some call the whole Peninsule by the name of *Peruana*, as they call the other from *Mexico* *Mexicana*.

This great and rich Kingdom was Conquered by the *Spaniards* ten years after that of *Mexico*, viz. in the year 1522. *Pizarro* was the Man imployed in Chief in the Conquest of it, a Man basely extracted, and as fordidly brought up, who was fain at last to steal for shelter into *America*. Where being grown Rich and Bold by his Adventures, and being well informed of the Wealth of *Peru*, he undertook the Conquest of it, and at last *per fas & nefas* got it for the Crown of *Spain*.

Since which Time the *Spaniards* have divided it into three *Audiencias*, or *Prefectures*. Viz. *Audiencia de Quito*, which takes up the Northern Parts; *Audiencia de los Reyes*, which contains the middle Parts, where you will find *Peru* properly so called; and *Audiencia de los Charcas*, which takes up the Southern Parts.

By *Amazonia* I mean all those Inland and Unknown Countrys which lye betwixt *Peru* on the *West* and *Brasil* on the *East*, bounded Northwards with *Terra-firma*, Southward with *Paraguay* and Part of *Peru*. Called *Amazonia* from the *Amazon*, that great and prodigious River, which runs through the North Parts of this Countrey from *West* to *East* into *Mar del Nort*, or *North Sea*.

Thus

Thus you have, *Philalethes*, a general Account of the Known Parts of the World. In *Terra Polaris Arctica* you will find *Greenland*, first discovered in the year 982. by *Ericus Rufus*; but little of it, besides the Sea-Coast, is known. Famous most of all for the Fishing of *Whales* hereabouts. East of *Greenland* lies *Nova Zemla*, of which nothing is discovered as yet besides the *Western Shore*. So that it is not known, whether it be an Island, or part of the Continent.

In *Terra Australis*, or towards it, you will find these Country's as imperfectly discovered as those. *Viz.* the *Land of Papous*, East of the *Molucca's*; and *New Guinea*, East of that. But some take the *Land of Papous* to be part of *New Guinea*. South of these is *New Holland*, not long since discovered by the *Hollanders*. But, whether it is an Island or Continent, we are as yet to seek.

Phil. I think we have run pretty well over the World. It is high time for us to rest ourselves. But I desire, next time we meet, to learn the Meaning of the Circles; that so I may understand the use of Globes and Maps.

Sophr. With all my heart.

The Seventh Discourse.

*Of the Use of Globes and Maps, with their
several Circles.*

Sophronius. In our former Discourses you have had a general Account of the Real Parts of the Earth. Now I come to the Imaginary ones, I mean those Lines or Circles, supposed to go about the World, and accordingly drawn in *Terrestrial* Globes and Maps, for the better teaching and learning of Geography.

Phil. Pray, let me have their Definition.

Sophr. A Globe is a compendious Representation of the Earth in its round Figure, with several Circles, and an exact Situation with the Names of its several Country's, Seas, chief Lakes and Rivers, Hills, Towns or City's.

A Map is either general, or particular. By a general Map is meant a *Planisphere*, or a Map of the whole Earth, describing the Old and New World by themselves, the first on the right hand, and the other on the left.

A particular Map is a Representation of a particular Part of the World, as of *Europe*, *Asia*, or *Africa*, the *Northern*, or *Southern America*. Which are but particular Maps in respect of a Map of the whole World.

'Tis true there are Maps indeed more particular, such as give an account of a particular Country, or of one Province or more of that Country. In which respect the Maps of *Europe, Asia, Africk, and America* may be said to be general.

And so I come to the Circles. But first I begin with the *Axle-tree* of the World, which is a right Line imagined to pass through the Center or midst of the World, from one end of it to the other. The upper end of which *Axle-tree* is called the *Pole Arctick*, or *North Pole*; and the nether end opposite to that, the *Pole Antartick*, or *South Pole*.

Phil. How many Circles are there?

Sophr. There are eight, principal Circles, four greater, and four lesser.

The greater Circles are

*The Equinoxial, The Zodiack,
The great Meridian, The Horizon.*

The lesser Circles,

*The Tropic of Cancer, The Arctick.
The Tropic of Capricorn, The Antartick.*

The Equinoctial, otherwise called *Aequator*, and by Mariners *the Line*, is a great Circle going round the Globe in the very midst betwixt the two Poles. It is called *Equinoctial*, because

because when the Sun is come to this Circle, then is the *Equinox*, that is, the day and night are of an equal length. And it hath the name of *Aequator*, because it divides the World into two equal Parts, the one *Northwards*, the other *Southwards*. From whence comes the Distinction of *Northern* and *Southern* Latitude, that reaching from this Circle as far as the *North Pole*, and this from the same Circle as far as the *South-Pole*. Now this Circle is divided into 360. Parts called Degrees of Longitude, as shewing the Length of the World. Whereof the first 90. Degrees run from *West* to *East*, then 180. Degrees by the back-side of the Globe from *East* to *West*, and at last 90. Degrees more from *West* to *East*, all which make up the number of 360. Degrees.

The great *Meridian* is a Circle that go's round the Poles, and so divides the World likewise into two equal Parts. In Globes it is made commonly of Brass. The same has got the name of *Meridian* from the *Latine Meridies*, that is Noon day, because when the Sun is come to that Circle then 'tis Noon in the Place whereof it is the *Meridian*. And it is called great *Meridian*, in opposition to those lesser *Meridians* which are to be seen in Globes and Maps. This is the Circle wherein are set down the 360. Degrees of Latitude, or Breadth of the World, divided into four times 90.

Now the Question is, which is the most proper place for the great or first *Meridian* to pass

through. For our Modern *Geographers* differ much about it, which causes a great Confusion. Some follow still *Ptolomy*, who placed it in the *Canary Islands*; others have removed it more *Westward* to the *Azores*. Neither do these agree amongst themselves. For some will have it pass through *S. Michael* and *S. Mary*, others through *Corvo* and *Flores*. For my part I don't admire an Innovation that causes so much Distraction; and, whatever they pretend to, the Remedy to be sure is worse than the Disease. Therefore it were much to be wished, that they would agree in this particular, and unanimously fix their *Meridian* somewhere, without which we cannot agree as to the Longitude of Places. One should think, that *el Pico* in *Tenariffe* might be a Place very fit for that purpose.

The *Zodiack* is a Circle to be seen in Globes, and general Maps, but not in particular ones. The same is a sloping Circle, crossing the *Equinoctial* in two places, and dividing it into two equal Parts. It is called *Zodiack*, from the *Greek* word *Zodion*, that signifies a living Creature. For it consists of Twelve Signs which are (as I said in a former Discourse) the Twelve chief Constellations of all the fixed Stars, and most of which are represented to us under the name and figure of living Creatures. The Use of this Circle is to shew the natural Motion of the Sun, which in a years time runs over those Twelve Signs, and therefore those Signs

Signs are called the Houses of the Sun. Amongst which *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, are *Northern*; and the other six, *Libra*, *Scorpio*, *Sagittarius*, *Capricornus*, *Aquarius*, and *Pisces*, *Southern*.

Phil. I desire to know the Course of the Sun through those Signs.

Sophr. Supposing you remember what I told you formerly of the *Equinoxes* and *Solstices*, I shall only add, that those Twelve Signs answer to the Twelve Months of the Year, *Aries* to *March*, *Taurus* to *April*, and so forth; with this difference, that when the Sun comes to *Aries* for example 'tis about the 10th of *March*, and then is our *Vernal Equinox*. From whence the Sun proceeds to *Taurus* and *Gemini*, till it comes to *Cancer*, and then is our *Summer-Solstice*. From *Cancer* it comes through *Leo* and *Virgo* to *Libra*, and there we have our *Autumnal Equinox*. From *Libra* it goes on through *Scorpio* and *Sagittarius* to the Sign of *Capricorn*, and then is our *Winter-Solstice*. From whence it comes up again, through *Aquarius* and *Pisces*, to *Aries* aforesaid. Thus the Sun passes every Month from one Sign to another, and Seasons follow one another. Thus we have the *Vernal Equinox* in *March* when the Sun is come to *Aries*, the *Summer-Solstice* in *June* when the Sun is come to *Cancer*, the *Autumnal Equinox* in *September* when it is come to *Libra*, and the *Winter Solstice* in *December* when it is come to the Sign of *Capricorn*. And, as the

Twelve Signs answer to the Twelve Months of the Year, so the Degrees into which each of them is divided do answer pretty well to the Days of the Month. For every Sign contains 30. Degrees, so that all of them together make up 360. Degrees.

Phil. Now you made it out to me as clear as the Sun. But what Circle is the *Horizon*?

Sophr. 'Tis an outside Circle, not to be seen in Maps, but only in Globes and Spheres. And it is called *Horizon*, because it confines our sight, and divides both Heaven and Earth into two parts called *Hemispheres*, the one seen, and the other not seen. The Use of it is to shew the Rising and Setting of the Stars, and the four Quarters of the World. But, as we generally conceive a *Horizon*, it is a moveable Circle. For we can never so little remove from any place, but we make a new *Horizon*. So that it is with *Horizons* as with *Meridians*, of both which we may fancy an infinite number, whereof the *Vertical* or *Perpendicular* point hanging over our heads is called *Zenith*, and that over the heads of our *Antipodes* *Nadir*.

In short, there are two kinds of *Horizon*, the one Rational or Intelligible, and the other Sensible, That reaches to the Firmament, and divides the whole World into two equal Parts, the one above and the other beneath our Dwelling Place. Whereas the Sensible *Horizon* is only that part of the World which our sight can reach in a Plain, the rest of the World by reason

son of the Rotundity of the Globe being out of our sight.

Phil. And what are the *Tropick* Circles?

Sophr. They are two Circles at an equal Distance from the *Aequator*, that is 23. Degrees and a half; that of *Cancer* in the *Northern*, and the other of *Capricorn* in the *Southern* Latitude. The same are called *Tropick* from the Greek word *Tropos*, which signifies Return; because, when the Sun is come to either of these Circles, it goes no further *Northward* or *Southward*, but go's back to the *Aequator*. For (as I told you before) when the Sun comes to the *Tropick* of *Cancer*, then we have our *Summer Solstice*; and, when it gets to that of *Capricorn*, then is our *Winter-Solstice*. So that these Circles do mark the greatest Declination of the Sun, that is its furthest Distance from the *Aequator*. Now they borrow their Names of *Cancer* and *Capricorn* from the two Signs so called, through which the Sun passes when he comes to those Circles.

As for the *Arctick* and *Antarctick*, they are two lesser Circles, each of them 66. Degrees and a half distant from the *Aequator*, the *Arctick* *Northward*, and the *Antarctick* *Southward*. And, there being but 90. Degrees from the *Aequator* to each Pole, it follows that these Circles are each of them but 23. Degrees and a half from their respective Poles, viz. the *Arctick* from the *Northern*, and the *Antarctick* from the *Southern* Pole. Therefore some call

them otherwise the *Polar Circles*, because nearest to the Poles.

Now the said four lesser Circles, viz. the *Tropicks* and *Polar*, serve to divide the World into five Parts called *Zones*.

Phil. I long to know the Meaning of these *Zones*.

Sophr. Then you must know there is one *Torrid*, two *Temperate*, and two *Frigid Zones*. The *Torrid Zone* reaches from one *Tropick Circle* to another, and so takes up 47. Degrees of Latitude, which (at the rate of 20. leagues, or 60. miles, a Degree) comes to 940. leagues, or 2820. miles. In this *Zone* it is that almost all *Africk*, and the better part of the *Southern America*, lie; besides a small part of *Asia*, and of the *Northern America*. And it is called *Torrid*, or Over-hot, because of the great and constant Heat of it, caused by the Sun's continual course and return betwixt the two *Tropicks* where this *Zone* is placed. Which made the Ancients believe, that it could not be inhabited for heat. But 'tis found since by experience, that it is not only Inhabited, but in some places most fruitful and pleasant to live in.

Phil. What d'ye call then the *Temperate Zones*?

Sophr. There's one *Northern*, and the other *Southern*. The *Northern*, wherein we live, lies betwixt the *Tropick of Cancer* and the *Arctick Circle*; and the *Southern*, betwixt the *Tropick of Capricorn*

Capricorn and the *Antarctick Circle*. Each of them takes up 43. Degrees of Latitude, which comes to 860. Geometrical Leagues, or 2580. miles. Both called Temperate Zones, because lying (as they do) betwixt the *Torrid Zone* and the *Frigid*, they are so tempered with heat and cold, that neither of them is so hot as the *Torrid*, or so cold as the *Frigid*. In the Northern Temperate Zone lies almost all *Europe* and *Asia*, and the greatest part of the Northern *America*; and in the Southern, a small part of *Africk*, and almost one half of the Southern *America*, besides what has been discovered of *Terra Australis*.

Phil. Now for the *Frigid Zones*.

Sophr. These are also one Northern, the other Southern. And they both lie in the utmost Parts of the World, the Northern betwixt the *Arctick Circle* and the *Arctick Pole*, and the Southern betwixt the *Antarctick Circle* and the *Antarctick Pole*. So that each of them contains 23. Degrees and a half, which comes to 470. Geometrical Leagues, or 1340. miles. And they are called *Frigid*, or Over-cold, because being extremely remote from the Course of the Sun through the *Zodiack* they partake but a little of its heat, and have its beams but oblique, and without any reflection. For which Reason, and because of their constant Darkness in Winter-time for several Months, the Ancient Geographers and Historians could not imagine these Zones to be at all Inhabited, no
more

more than the *Torrid* for its exceeding Heat. But it proves a Mistake; though 'tis confessed, as to the *Northern Frigid Zone* which is partly known to us, that it is but thinly Peopled. In which *Zone* part of *Norway* and *Lapland* in *Europe* is situate, some part of *Tartary* in *Asia*, and *Terra Borealis*.

Thus much for the eight principal Circles, and the Use of them. Now let us take a view of those inferiour Circles, which are called *Meridians* and *Parallels*.

The *Meridians*, or Circles of Longitude, are those Lines which (like the great *Meridian*) go round the Globe from one Pole to the other. And the *Parallels*, or Circles of Latitude, are those which cross the Globe on both sides of the *Equator*.

You may suppose, if you please, as many of either sort as there are Degrees. But, lest the Names of Places and Country's should be darkned with so many Lines, therefore in Globes and Maps these Circles do commonly lie at ten Degrees distance of each other.

And, as by the *Meridians* you may find out the Longitude of any Place in a Globe or Map; so by the *Parallels*, you may know the Latitude.

Phil. How so, *Sophronius*?

Sophr. The Longitude you'll find thus, with a pair of Compasses. First, set one foot of your Compass in the Place the Longitude whereof you desire to know, and the other in the next *Meridian* to it, whether it be on the
right

right hand or the left. From thence draw down your Compasses, following still that *Meridian* till you come to the *Aequator*, and there mark upon what Degree of the *Aequator* the foot of your Compasses which was upon the Place do's rest. Then see upon the *Aequator* how many Degrees that is distant from the first *Meridian*, and that is the true Longitude of the Place.

Phil. But then one must be ruled right or wrong by the great *Meridian* that's set down in the Globe or Map.

Sophr. If you dont like it, 'tis but adding or bating the number of Degrees which makes the difference.

The Latitude is to be taken thus. First set one foot of your Compasses upon the Place of which you design to take the Latitude, and the other upon the next Parallel, whether above or beneath. Then draw your Compasses from that Place, following still that Parallel till you come to the *Meridian* which is marked with the Degrees of Latitude, and mark upon what Degree the foot of your Compasses which you did draw from the Place doth rest. That you will find to be the true Latitude of the Place. And of that Latitude are all Places Parallel to that, how far soever they lie asunder, *East* and *West*.

From what is said 'tis to be concluded, that all Places just under the great *Meridian* have no Longitude, and those under the *Aequator* no Latitude.

Phil.

Phil. I apprehend you. Now I desire to know what is the meaning of *Climates*.

Sophr. A Clime, or Climate, is such a Space of the *Terr-Aqueous* Globe as is included betwixt two Parallels.

Phil. How many Climes then do you reckon?

Sophr. The Ancients reckoned but fourteen, that is, seven in the *Northern*, and as many in the *Southern* Latitude. Those in the *Northern* Latitude they called by the name of some famous City, Island, River, or Hill, through which the middle Parallel of the Climate passeth; As *διαμεσής, διασύνης, διαλεξανδρείας, διαρόδου, διαρώμης, διαβορυδένεθ, διαρίφατων*. And the *Southern* Climes, opposite to those, they called by the same Names, by putting only before them the Particle *αντι*; as *αντιδιαμεσής, αντιδιασύνης, &c.*

But, to those fourteen Climes some Geographers have added two more, some five, and others ten.

Phil. What is the Use of those Climes?

Sophr. To find out how long is the longest Day in any Place whatsoever. For you must know, that the longest Day under the *Equator* is equal with the night, that is 12. hours of Day and as many of Night. But the further you go from the *Equator*, either *Northwards* or *Southwards*, the longest Day is longer by half an hour in every Clime, till they come to the length of 24 hours, that is, without any

any night. Which length attained, they increase no more by hours, but by Months, till they come to the length of half a year, which is just under the Poles.

But this Division of the Earth into Climes is not generally approved of, and that for these two Reasons. First, because it is as easie to find out the Length of Days for any Place as to find out the Climates; and secondly, because of their vast Inequality.

Therefore, if we must divide the *Terr-aqueous* Globe into Climes, the best way will be to divide each Latitude into nine Climes, and so each Clime shall equally consist of ten Degrees. Thus the Situation of any Place will be presently found out by the Degrees of Latitude. As for Exemple, *Paris*, *Rome*, and *Venice*, being situate betwixt 40 and 50 Degrees of *Northern* Latitude, shall be counted in the fifth Clime; *London* and *Amsterdam*, betwixt 50 and 60, in the sixth Clime.

Phil. But then how shall one find out the Length of Days?

Sophr. By the Degrees of Latitude, without any more ado; as you have it in the following Table. Where by the 30 Minutes you must understand half an hour; For, as a Degree, so is an Hour divided into 60 Minutes.

A Table shewing the Length of Days by
the Degrees of Latitude.

Latitude. Deg. Min.	Longest Day	
	Hours.	Min.
8 34	12	30
16 43	13	00
23 10	13	30
30 47	14	00
36 30	14	30
41 22	15	00
45 29	15	30
49 21	16	00
51 58	16	30
54 29	17	00
56 37	17	30
58 26	18	00
59 59	18	30
61 18	19	00
62 25	19	30
63 22	20	00
64 06	20	30
64 49	21	00
65 21	21	30
65 47	22	00
66 06	22	30
66 20	23	00
66 28	23	30
66 31	24	00

Now

Now, from 66 Degrees 31 Minutes to the Pole it self set at 90 Degrees, we must account by the Months. As

Latitude.			
Deg.	Min.	Months.	
67	15	1	00
69	30	2	00
73	20	3	00
78	20	4	00
84	00	5	00
90	00	6	00

Now, *Philaetbes*, you must know there are several Ways of measuring the Earth. As by *Miles*, in most part of *Europe*; by *Leagues*, in *France* and *Spain*; and by *Versts*, in *Moscovy*. Neither do's any Nation make use every where exactly of one and the same Measure. For the Leagues in *France*, as the Miles in *England*, are in some places very short, and in others as long again. But, according to the Geometrical Measure, a League is to contain 3000. Paces, a *German* Mile 4000, and other Miles (as *English* and *Italian*) 1000. So that there go three of our Miles to a League, and four to a *German* Mile. Whereas they reckon four *Moscovian Versts* to a League.

League. Thus a Degree is 20 Leagues, which comes to 60 *English* or *Italian* Miles, and but 15 *German*. And so the Compass of the Earth being 360 Degrees comes to 7200 Leagues, 21600 *English* or *Italian* Miles, 5400 *German*.

Phil. But how shall I do, *Sophronius*, to find out the true Distance of any two Places, either in a Globe or Map?

Sopbr. In order to that you must first understand, that two Places may differ three manner of ways, that is in Latitude only, in Longitude only, or in both.

If they differ only in Latitude, 'tis but taking with a pair of Compasses the difference of Latitude, then summing up the Degrees it comes to, and multiplying the said Degrees by Miles or Leagues, according to the foresaid Geometrical Measure. And, if there be any odd Minutes, allow for every Minute an *English* Mile, or for every three Minutes a League.

But, if the two Places be in the same Latitude, and differ only in the Longitude, then take with your Compasses 5 or 10 Degrees of Longitude, more or less, according to the distance of the Places. Take them upon the Equinoctial, in the Longitude answering to the said Distance. Then look how many times the Distance taken with your Compasses is comprehended in the space that lieth betwixt the two Places, and so compute how many Degrees it comes to. And, if so be there remains any odd space not fully answering the first
wideness

wideness of your Compasses, then take that odd space with your Compasses being straightned and made fit to it. That done, multiply the whole by Leagues or Miles, and you will find the Product to be the true Distance of the Places.

Lastly, if the two Places differ both in Longitude and Latitude, do but take with your Compasses the true Distance of the two Latitudes upon the first *Meridian*. Then look, as before, how many times the foresaid Distance taken with your Compasses is comprehended in the space that lieth betwixt the two Places, and multiply the Distance accordingly. Which being multiplied again by 20 for Leagues, or 60 for Miles, you will find the Product thereof to be the true Distance of the one Place from the other. And, if there be any odd space remaining, do in this Case as in the former.

Thus you may take the Distance of any two Places in a Globe, or General Map, as also in the Maps of *Europe, Asia, Africk, the Northern, or Southern America*. As for other particular Maps, they have Scales, whereby you may readily find out the Distance of any two Places therein mentioned. And so I have done with this Part of Geography.

What remains is to give you a short Description

Of

Amphisccii, Antaci,
Periscii, Periaci,
Heteroscii, Antipodes.

Phil. I have heard indeed of *Antipodes*, but I know not what's meant by the rest.

Sophr. First you must know, the first three are so called in respect of their Shadows, and the other three in respect of their Site and Position.

Those are called *Amphisccii*, that dwell in the *Torrid Zone*, between the two *Tropicks*. For their Shadows are both ways, sometimes to the *South*, and sometimes to the *North*.

Periscii are such as dwell beyond the Polar Circles, whose Shadows are on all sides of them.

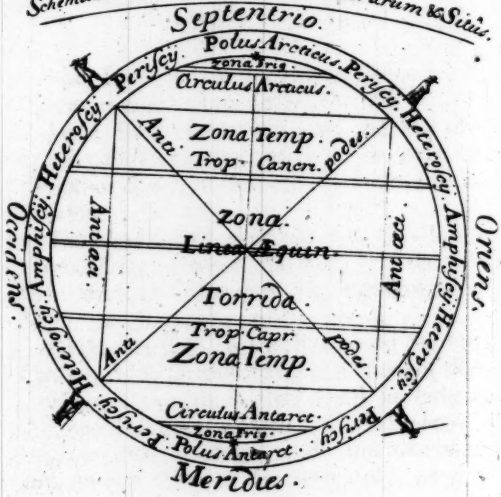
Heteroscii are those that dwell in either of the two Temperate Zones. Called *Heteroscii*, because their Shadows reach but one way; viz. in our *Zone* to the *North* only, as in the other to the *South* only.

Those we call *Antaci* that dwell under the same *Meridian*, and are equally remote from the *Aequator*; but with this difference, that the one is in the *Northern*, and the other in the *Southern* Latitude. So that the *Summer* of the one is the others *Winter*.

Periaci are those that dwell in the same *Parallel*, or Circle of Latitude; but so distant
East



Schema Incolarum Terra, ratione Umbrarum & Siliis.



East and West, that (though the Season of the Year and the Length of Days be to both alike, yet) it falls out the one's Mid-night is the others Noon.

By the *Antipodes* we mean those that dwell feet to feet, so that a right Line drawn from the one unto the other passeth from *North* to *South* through the Center of the World. And these are distant 180 Degrees from each other, it being half the Compass of the Earth. They differ in Seasons of the Year, Length of Days, Rising and Setting of the Sun.

Phil. These *Antipodes* are odd kind of Creatures, and I do not yet understand them thoroughly. My Brains are a little giddy, and methinks I see them tumbling down to Heaven.

Sophr. So our *Antipodes* might think of us, and yet you see we stand upon our Legs, and every where the Heavens above (not under) us.

Phil. Well, I will beat it (if I can) into my head.

Sophr. Do but mind the following Scheme; and, if that do not convince you, nothing will.

See the Scheme.

Phil. This is pretty, and now I see clearly what a gross Error I was in.

Sophr. It is, I confess, an unpardonable Error in these Times, when the World has in a manner Through-Lights made in it. But, before the New World was found out, the Do-

ctrine of the *Antipodes* was counted an incredible ridiculous Fable. S. *Augustine*, *Lactantius*, and some others of the Ancient Writers made no more of it. Venerable *Beda* joyned with them in their Error. And 'tis observable, that *Virgilius* Bishop of *Saltzburg* in *Germany* was condemned of *Hereresy* by Pope *Zachary* in the year 745. for having writ a Book inducing the belief of the *Antipodes*. For which he was complained of by *Boniface* Arch-Bishop of *Mentz*, as if some damnable Doctrine had been designed under hand by it. And so the poor Bishop of *Saltzburgs* Misfortune was to be Learned in a Time of Ignorance.

Phil. Well. But you don't tell me all this while how I shall find my *Antipodes*.

Sophr. When you have a Globe, and desire to know your *Antipodes*, it is but turning the Globe *East* and *West*, till you bring your Dwelling Place just to the *Horizon*. And then observe the Degree. If the Place in the *Northern* Latitude be *West* from the *Meridian*, 'tis but telling so many Degrees on the *East* side of the *Meridian*, and there will be your *Antipodes*.

F I N I S

ExD.

